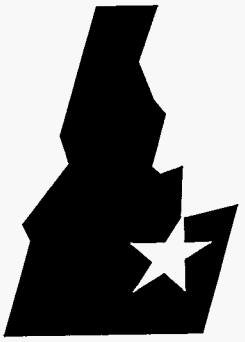

Idaho
National
Engineering
Laboratory

INEL-95/0127
September 1996

Life-Cycle Costs for the Department of Energy Waste Management Programmatic Environmental Impact Statement

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LOCKHEED MARTIN

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Idaho National Engineering Laboratory
Lockheed Idaho Technologies Company
Idaho Falls, Idaho 83415

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FOREWORD

The current version of this report is an update to the draft report issued in August 1995. The technical content of this report is exactly the same as it was in the draft version. No changes or additions have been made since the draft was issued. The draft has been updated so that the version of this report corresponds with the status of the Waste Management Programmatic Environmental Impact Statement.

ABSTRACT

The U.S. Department of Energy (DOE) Office of Environmental Management has produced a Programmatic Environmental Impact Statement (PEIS) in order to assess the potential consequences resulting from a cross section of possible waste management strategies for the DOE complex. The PEIS has been prepared in compliance with the National Environmental Policy Act, and includes evaluations of a variety of alternatives. The analysis performed for the PEIS included the development of life-cycle cost estimates for the different waste management alternatives being considered. These cost estimates were used in the PEIS to support the identification and evaluation of economic impacts. Information developed during the preparation of the life-cycle cost estimates was also used to support risk and socioeconomic analyses performed for each of the alternatives.

This technical report provides an overview of the methodology used to develop the life-cycle cost estimates for the PEIS alternatives. The methodology that was applied made use of the Waste Management Facility Cost Information Reports, which provided a consistent approach and estimating basis for the PEIS cost evaluations. By maintaining consistency throughout the cost analyses, life-cycle costs of the various alternatives can be compared and evaluated on a relative basis.

This technical report also includes the life-cycle cost estimate results for each of the PEIS alternatives evaluated. Summary graphs showing the results for each waste type are provided in the main document, and tables showing different breakdowns of the cost estimates are provided in the Appendices A–D. Appendix E contains PEIS cost information that was developed using an approach different than the standard methodology described in this report. These cost estimates were prepared by different parties and are included so that all of the PEIS life-cycle cost summaries can be found in a single reference. Specifically, costs for high-level waste are found in this section, as well as supplemental costs for additional low-level waste and hazardous waste alternatives.

CONTENTS

FIGURES

TABLES

ACRONYMS

ACR	Annual Cask Requirement
AGDSP	engineered disposal module
ANL-E	Argonne National Laboratory-East
ANL-W	Argonne National Laboratory-West
CH	contact-handled
CSV	canister storage vault
D&D	decontamination and decommissioning
DOE	U.S. Department of Energy
DWPF	Defense Waste Processing Facility
EA	environmental assessment
EIS	environmental impact statement
ER	environmental restoration
ETEC	Energy Technology Engineering Center
FEMP	Fernald Environmental Management Project
FTE	full-time equivalent
HANF	Hanford Site
HLW	high-level waste
HW	hazardous waste
INEL	Idaho National Engineering Laboratory
ITRI	Inhalation Toxicology Research Institute
LANL	Los Alamos National Laboratory
LBL	Lawrence Berkeley Laboratory

LDR	land disposal restriction
LITCO	Lockheed Idaho Technologies Company
LLNL	Lawrence Livermore National Laboratory
LLW	low-level waste
MLLW	mixed low-level waste
MSP	Middlesex Sampling Plant
MVDS	modular vault dry storage
NEPA	National Environmental Policy Act
NTS	Nevada Test Site
O&M	operations and maintenance
ORR	Oak Ridge Reservation
PAD	Paducah Gaseous Diffusion Plant
PANT	Pantex
PEIS	Programmatic Environmental Impact Statement
PLCC	planning level life-cycle cost
PORT	Portsmouth Naval Shipyard
PORTS	Portsmouth Gaseous Diffusion Plant
RFP	Rocky Flats Plant
RH	remote-handled
SIDSP	silo disposal module
SLDSP	shallow land disposal module
SNL	Sandia National Laboratory
SRS	Savannah River Site

TRUW	transuranic waste
TSD	treatment, storage, and disposal
UMO	University of Missouri
WAC	waste acceptance criteria
WBS	Work Breakdown Structure
WIPP	Waste Isolation Pilot Plant
WM	Waste Management
WMFCI	Waste Management Facility Cost Information
WVDP	West Valley Demonstration Project

Life-Cycle Costs for the Department of Energy Waste Management Programmatic Environmental Impact Statement

1. INTRODUCTION

This technical report has been prepared as part of the formal documentation for the U.S. Department of Energy (DOE) Office of Environmental Management Programmatic Environmental Impact Statement (PEIS) (DOE 1995a). The purpose of this report is to explain the methodology used to develop cost estimates for the various PEIS cases that were evaluated and to present the PEIS life-cycle cost estimate results. The information contained in this report is meant to be used as a supplement to the overall PEIS document. The PEIS provides a detailed explanation of the development and evaluation of alternatives, and describes the scope of the impact analyses that have been performed. The cost estimates that were developed for the PEIS are described in this report. This cost information was used to support analysis of economic and related impacts.

1.1 Overview of Report Contents

This report summarizes the cost results and manpower requirements obtained for each of the PEIS cases. The cost estimates and manpower requirements have been developed at a planning level, which means that the data used as a basis for quantifying costs were only partially available on a facility-specific level. The cost estimates represent life-cycle waste management costs. The life-cycle includes all activities necessary to manage waste from the time it is originally generated until it is ultimately disposed.

The PEIS cost analysis involves a general approach using a consistent methodology and set of assumptions. The cost estimates can be used as a basis for comparing alternatives but are not meant to be used for budgeting purposes. Also, no attempt at cost optimization has been made; the cost estimates developed for the various PEIS alternatives were based on a predetermined configuration of sites and definition of processing requirements.

Costs are presented in constant 1994 current year dollars, reflecting the total life-cycle costs by waste type alternative. The PEIS life-cycle costs for all alternatives evaluated are presented in Appendices A–D of this report. Project and budget level-of-detail costs are not included. Costs have been estimated using an approach that keys the cost of facilities and transportation to waste quantities. Cost parameters are referenced to currently existing technologies and DOE historical cost experience.

Also presented in this report are the manpower requirements calculated for each PEIS alternative. These manpower requirements are presented in work-years, also called full-time equivalents (FTEs). One FTE is defined as one employee working for 1 year, or 2,080 hours. The PEIS manpower calculations are based on the same methodology and assumptions as the PEIS cost estimates. Full-time equivalent results are presented in tables analogous to the cost results, by site,

for each PEIS alternative analyzed. The FTE results are used as a basis for worker risk calculations presented elsewhere in the PEIS. Full-time equivalent calculations are major feeder data to cost computations and are computed as part of the same methodology. All subsequent discussions in this report regarding the environmental impact statement (EIS) PEIS cost estimates also apply to the PEIS FTE estimates.

Some of the cost estimates presented in this report were not developed using the standard approach described in the following sections. These "non-standard" estimates were prepared by others working on the PEIS and are included in this report so all of the PEIS cost information can be found in the same document. The cost results and explanations of the methods used to obtain these other costs are located in Appendix E. Except for the data presented in Appendix E, all life-cycle costs discussed in this report were developed using the standard approach that is described in detail throughout the main body of this document.

1.2 Waste Management Activities

Various waste management (WM) technologies are applied to sort/handle waste, reduce waste volume, destroy organic chemicals in waste, remove toxic metals from waste, treat hazardous characteristics, and stabilize and package waste for disposal. The facilities that use these technologies must be designed to accommodate the various physical/chemical forms and radioactive and chemical characteristics. Generic technologies necessary to meet the treatment, storage, and disposal (TSD) requirements for each alternative were identified and sized to meet PEIS process needs. For analytical purposes, and to facilitate insertion into any site or system, the various technologies were defined as functional modules. These modules fall into the following categories:

- Common functions—treatment administration; receiving and inspection; open, dump, and sort; maintenance; and certification and shipping
- Pre-treatment—characterization, shredding/compaction, and stored waste retrieval
- Primary treatment—sludge washing, soil washing, debris washing, incineration, special waste processing, neutralization, deactivation, aqueous waste treatment, lead recovery, mercury separation, wet-air oxidation, thermal desorption, supercompaction, metal sizing/decontamination, and metal melting
- Secondary treatment and stabilization—polymer stabilization, grout stabilization, organic stabilization, packaging, and vitrification
- Storage—storage administration, storage receiving and shipping, contact-handled (CH) storage, and remote-handled (RH) silo storage
- Disposal—disposal administration, disposal receiving, shallow land disposal, engineered disposal, silo disposal, and borehole disposal.

1.3 Waste Management Cost Components

The program life-cycle cost estimates for the various PEIS alternatives include the following major cost components:

- Preoperations costs—technology adaptation, including bench tests and demonstrations; statutory and regulatory permitting; plant startup; and related conceptual design, safety analysis, project management, and contingencies

- Waste treatment, storage, and disposal facility construction costs—building, equipment, and related design; labor; construction management, project management, and contingencies

- Operations and maintenance costs—operations, labor and materials, maintenance labor and equipment, utilities, contractor supervision and overhead, and related project management and contingencies

- Decontamination and decommissioning (D&D) costs—facility decontamination, demolition, environmental closure, postclosure, and monitoring activities

- Transportation costs—intersite road and rail transportation costs for the transportation configurations established.

The cost components also include the following subelements: direct labor, equipment, and materials; indirect technical labor and facilities; overhead and profit; government administration and management; and reserve/contingencies.

The cost components do not include the following subelements: site infrastructure costs, operations office oversight costs, or DOE program and policy-related costs.

2. DEVELOPMENT OF THE COST-ESTIMATING BASIS

2.1 Waste Management Facility Cost Information Reports

The PEIS used a set of reports, collectively referred to as the "Waste Management Facility Cost Information (WMFCI) reports," to develop cost and manpower estimates for the various alternatives being considered. The WMFCI reports provide a consistent and defensible basis for generating life-cycle cost information for treatment, storage, and disposal facilities using specific data for each major waste type. The WMFCI reports present cost and manpower information for low-level waste (LLW), mixed low-level waste (MLLW), transuranic waste (TRUW), and hazardous waste (HW) (Shropshire et al. 1995a; Shropshire et al. 1995b; Shropshire et al. 1995c; and Shropshire et al. 1995d). Within the waste type categories listed above, cost information has been developed for both alpha and nonalpha waste (LLW and MLLW), RH waste (LLW, MLLW, and TRUW), and CH waste (TRUW). For some treatment processes, costs for portable systems have also been developed (LLW and MLLW); these afford a more realistic and lower cost approach for treating extremely small waste loads. A separate report (Feizollahi et al. 1995) has been developed to provide cost computation methodology that can be applied for the transportation of radioactive and HWs.

The WMFCI reports referenced above have been finalized since the original cost estimates for the PEIS were prepared. The PEIS cost estimates presented in this report were developed based on interim versions of the WMFCI reports for MLLW, TRUW, and HW (Feizollahi and Shropshire 1994a, Feizollahi and Shropshire 1994b, and Feizollahi and Shropshire 1994c). Some of the cost relationships presented in the final version of the reports have been changed to reflect more current cost basis information that has become available since the interim reports were issued.

The WMFCI was developed specifically for DOE-owned and operated facilities. The cost-estimating basis used in the reports includes provisions necessary to comply with all applicable regulatory requirements for a particular waste type and to meet the requirements of all applicable DOE orders. Indirect costs and overhead burden rates used in the WMFCI reports were based on those historically encountered at DOE's Idaho National Engineering Laboratory (INEL), which fall approximately in the middle of the range of cost factors found at several other DOE sites and are, therefore, considered to be representative for complex-wide estimating purposes.

2.2 Modular Estimating Approach

To facilitate the development of comprehensive cost estimates covering cradle-to-grave management of wastes, the WMFCI reports categorize all necessary WM activities into modules, each representing a discrete facility that carries out a single WM function. A unique set of cost information has been developed for each WMFCI module. Within a given module, a series of unit operations necessary to accomplish the specified function was defined in sufficient detail to enable development of the planning level cost information. For example, the incineration module includes each of the following unit operations: feed preparation, incineration, secondary combustion, and off-gas treatment. The array of unit operations is sufficiently broad to accomplish the incineration tasks required by the identified waste inventories.

To provide a comprehensive analysis of the WM facility requirements, the support facilities required to manage the waste (for example, administration and maintenance) were also provided as separate facility cost modules. This approach facilitates analysis of scenarios that involve existing facilities where none, some, or all of the administrative functions may already be in place.

Once a particular waste management scenario is defined, a series of modules can be selected that best represents all activities required to accomplish the necessary functions. Some scenarios may require only one or two modules to fully define the waste management functions, while others may require 10 or more modules to capture all necessary functions. This modular approach to establishing the cost-estimating basis provides maximum flexibility; thus, the WMFCI can be used to support a broad range of WM options.

The cost modules that have been developed are listed by waste type in Table 2-1.

2.3 Bottom-Up Design Basis

A "bottom-up" estimating approach was used to develop the WMFCI cost basis. Initially, a capacity range for each facility cost module was established by studying the currently stored and future projections of DOE waste quantities. The process functional diagrams and facility layout drawings were developed at the individual unit operation level. After all unit operations required for a module were defined, major equipment lists, building configurations, and square footage requirements were established, and cost estimates for each facility were developed. Waste quantity data from the DOE complex were used to define baseline capacities for five facility sizes: portable, minimum, small, medium, and large. Using these sizes, a preconceptual design package for each cost module was developed as the basis for the planning level life-cycle cost (PLCC) estimates. Each preconceptual design package includes a summary functional and operational requirements description, a process flow diagram with mass flow rates, and a facility layout. The design packages use as much available data from existing or planned DOE facilities as possible. This approach, referred to as "anchoring," provides a reference point used as the basis for estimating the various cost components. New designs were generated only if no existing data were available.

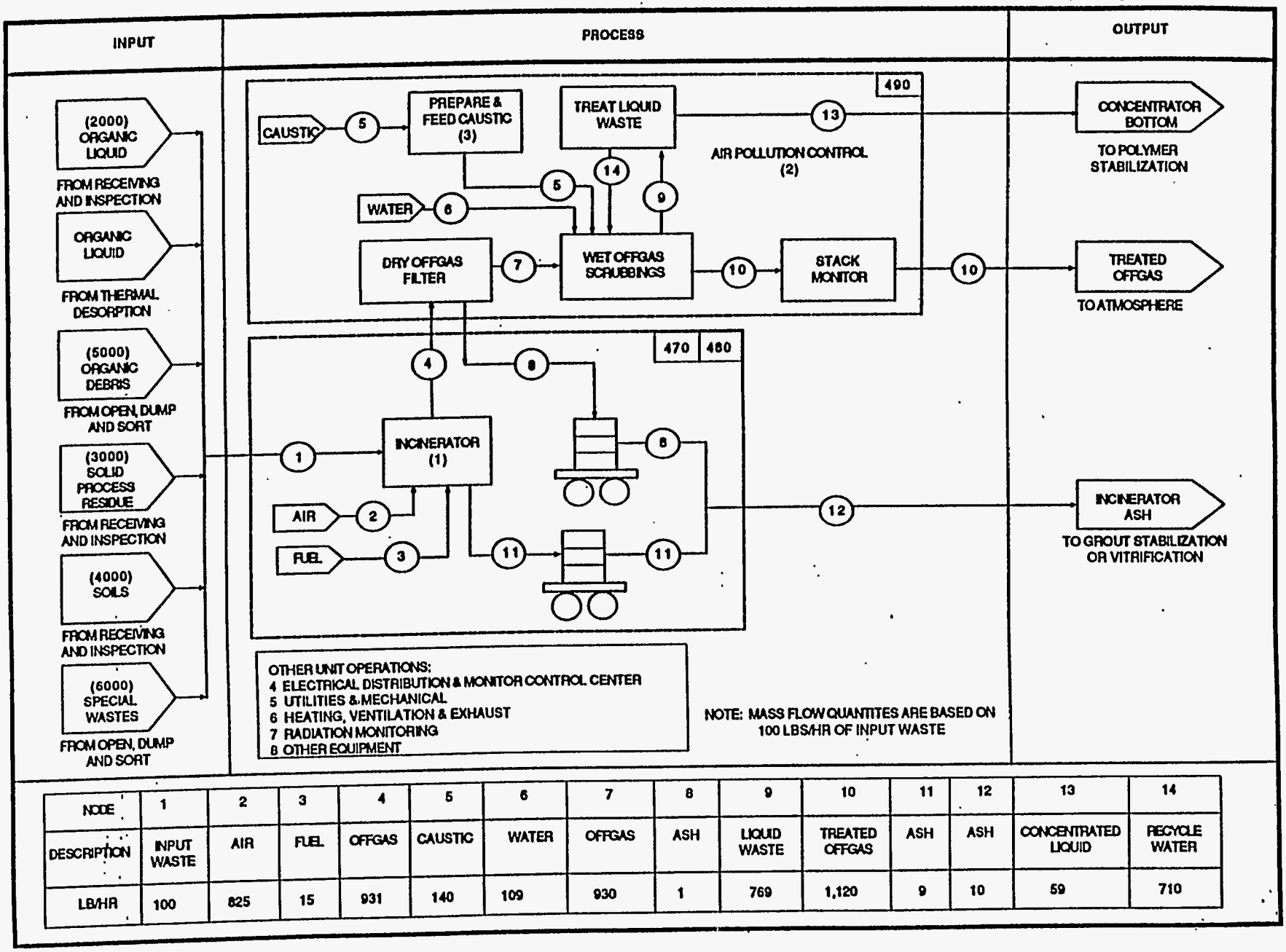
The design for each module started with generic processes. As an example, a generic incineration process is shown in Figure 2-1.

The generic processes were then expanded into more detailed functional layouts with specific equipment lists. The layouts include equipment design and functions, safety systems, shielding, and any other factors that influence cost or worker risk. A sample modular plant layout of the incineration module is shown in Figure 2-2.

For each technology module analyzed, cost data were gathered for a range of capacities—large, medium, small, and minimum (including portable facilities). The processing sizes were selected by anticipating the range of processing requirements to be encountered in the PEIS according to the earlier analysis of waste loads. The minimum module size represents the smallest possible capacity that can be supported with standard off-the-shelf equipment.

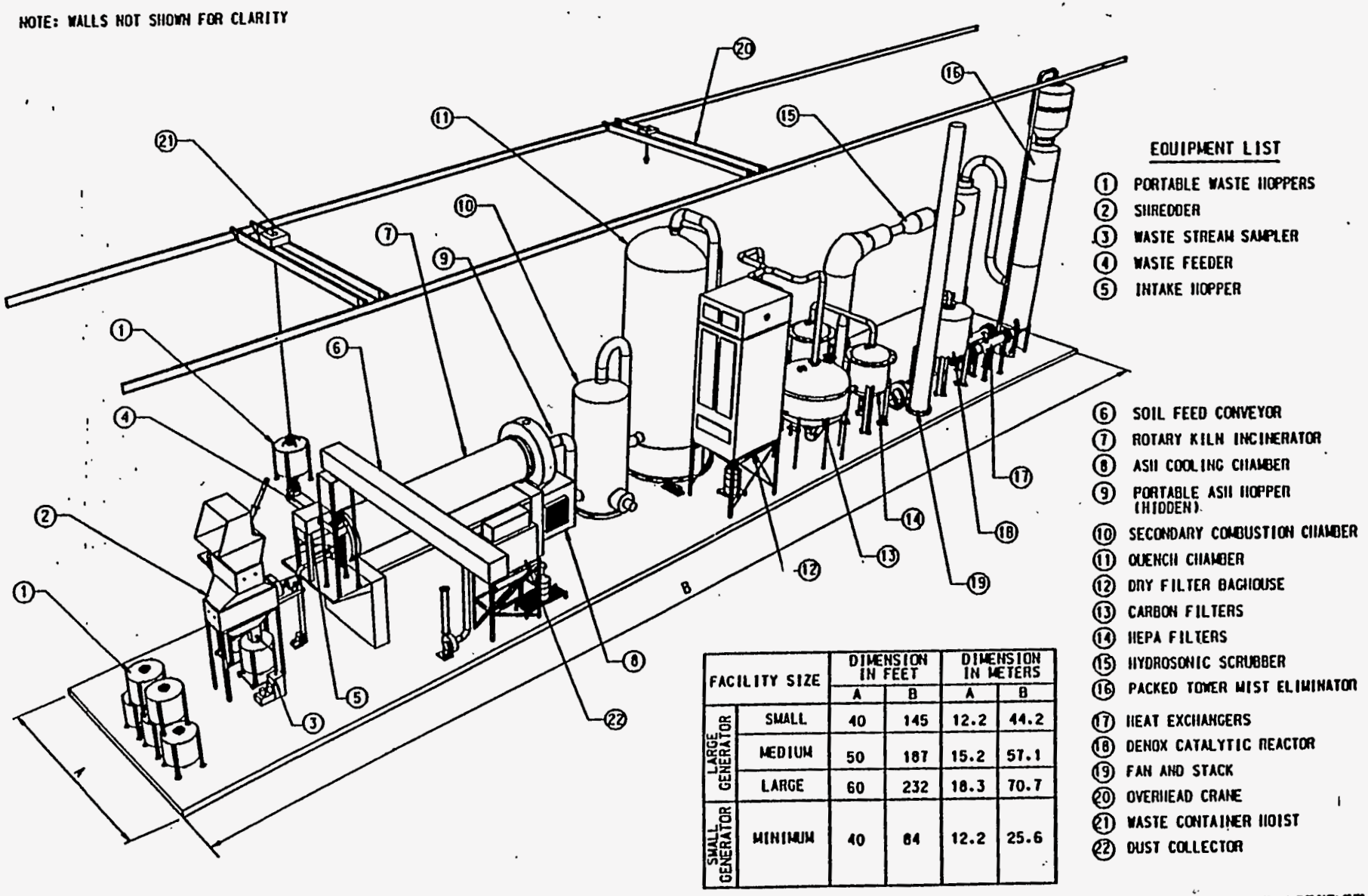
Table 2-1. Facility cost modules included in WMFCI reports.

Module	LLW	MLLW	TRUW	HW
Treatment administration	X	X	X	X
Small generator front-end/back-end support	X	X	—	—
Waste characterization	—	—	X	—
Packaging	X	X	X	—
Stored waste retrieval	—	—	X	—
Receiving and inspection	X	X	X	X
Open, dump, and sort	X	X	X	—
Assay, sort, and package	—	—	—	X
Maintenance	X	X	X	—
Incineration	X	X	X	X
Aqueous waste treatment	—	X	X	X
Neutralization	X	—	X	—
Shredding/compaction	X	X	X	—
Supercompaction	X	—	—	—
Metal melting	X	X	—	—
Wet-air oxidation	—	X	—	—
Thermal desorption	—	X	—	—
Sludge washing	—	X	—	—
Debris washing	—	X	—	—
Soil washing	—	X	—	—
Lead recovery	—	X	X	—
Mercury separation	—	X	X	X
Organic removal	—	—	—	X
Deactivation	—	X	X	X
Metal sizing/decontamination	X	X	—	—
Special waste processing	X	X	X	—
Recycling	—	—	—	X
Organic stabilization	—	—	X	—
Grout stabilization	X	X	X	X
Polymer stabilization	X	X	—	—
Vitrification	X	X	X	—
Certification and shipping	X	X	X	X
Storage administration	X	X	X	—
Storage receiving and shipping	X	X	X	—
Storage	X	X	X	—
Silo storage	X	X	X	—
Disposal administration	X	X	—	—
Disposal receiving	X	X	—	—
Engineered disposal	X	X	—	—
Shallow land disposal	X	X	—	X
Silo disposal	X	X	—	—
Borehole disposal	X	X	—	—



NODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14
DESCRIPTION	INPUT WASTE	AIR	FUEL	OFFGAS	CAUSTIC	WATER	OFFGAS	ASH	LIQUID WASTE	TREATED OFFGAS	ASH	ASH	CONCENTRATED LIQUID	RECYCLE WATER
LB/HR	100	825	15	931	140	109	930	1	769	1,120	9	10	59	710

Figure 2-1. Generic incineration process.



FACILITY SIZE		DIMENSION IN FEET		DIMENSION IN METERS	
		A	B	A	B
LARGE GENERATOR	SMALL	40	145	12.2	44.2
	MEDIUM	50	187	15.2	57.1
	LARGE	60	232	18.3	70.7
SMALL GENERATOR	MINIMUM	40	84	12.2	25.6

Figure 2-2. Incineration module equipment layout.

Detailed flow diagrams were prepared to ensure that appropriate treatments were provided for all wastes. During treatment, many secondary waste streams are generated, and each contributes to the final waste products. Assumptions concerning the additional treatment requirements imposed by these waste streams were made to link the individual technology modules in various combinations to represent an integrated waste management facility capable of processing the individual site wastes. A schematic layout of a generic integrated facility consisting of treatment, storage, and disposal modules is shown in Figure 2-3.

2.4 Cost Components (Work Breakdown Structure)

The costs for each facility are divided into the following components (estimated separately):

1.0 Preoperational activities, including the costs of studies, demonstrations, conceptual designs, permitting, and startup

2.0 Facility construction, including definitive design, equipment and building, and construction labor costs

3.0 Operations and maintenance (O&M) costs

4.0 Decontamination and decommissioning costs.

Equipment costs were obtained either by soliciting information from suppliers, by using existing data (actual costs), or by making engineering estimates. Building costs were developed by generating detailed material quantities, labor hours, and related other costs for construction at the INEL for the different types of facilities. Costs for the remaining three components of the estimate [operations-budget-funded activities (preoperation), O&M, and D&D] were obtained from the actual costs of existing facilities and from engineering estimates. The cost components do not include various site costs for the supporting infrastructure and basic site services, which are known as chargebacks. The allocation rules for chargebacks are site-specific and are common to all PEIS alternatives. Therefore, they do not affect the relative comparison of alternatives by cost and were not included in the analysis.

2.5 Cost Estimate Development

To assist in application of the WMFCI, the baseline cost/capacity relationships defined for each cost module have been translated into parametric cost curves. These relationships are defined by linear and log-linear equations that uniquely define the costs over a broad range of capacity requirements. Each facility module has specific cost equations that define the preoperations, facility construction, O&M, and D&D costs. The cost relationships allow the WMFCI to be consistently applied over a wide range of estimating scenarios.

Both DOE and the commercial nuclear industry have facilities that are similar to some of the cost modules examined by the WMFCI. Several facilities (for example, incinerators, melters, supercompactors, and engineered disposal) were surveyed to obtain functional and operational

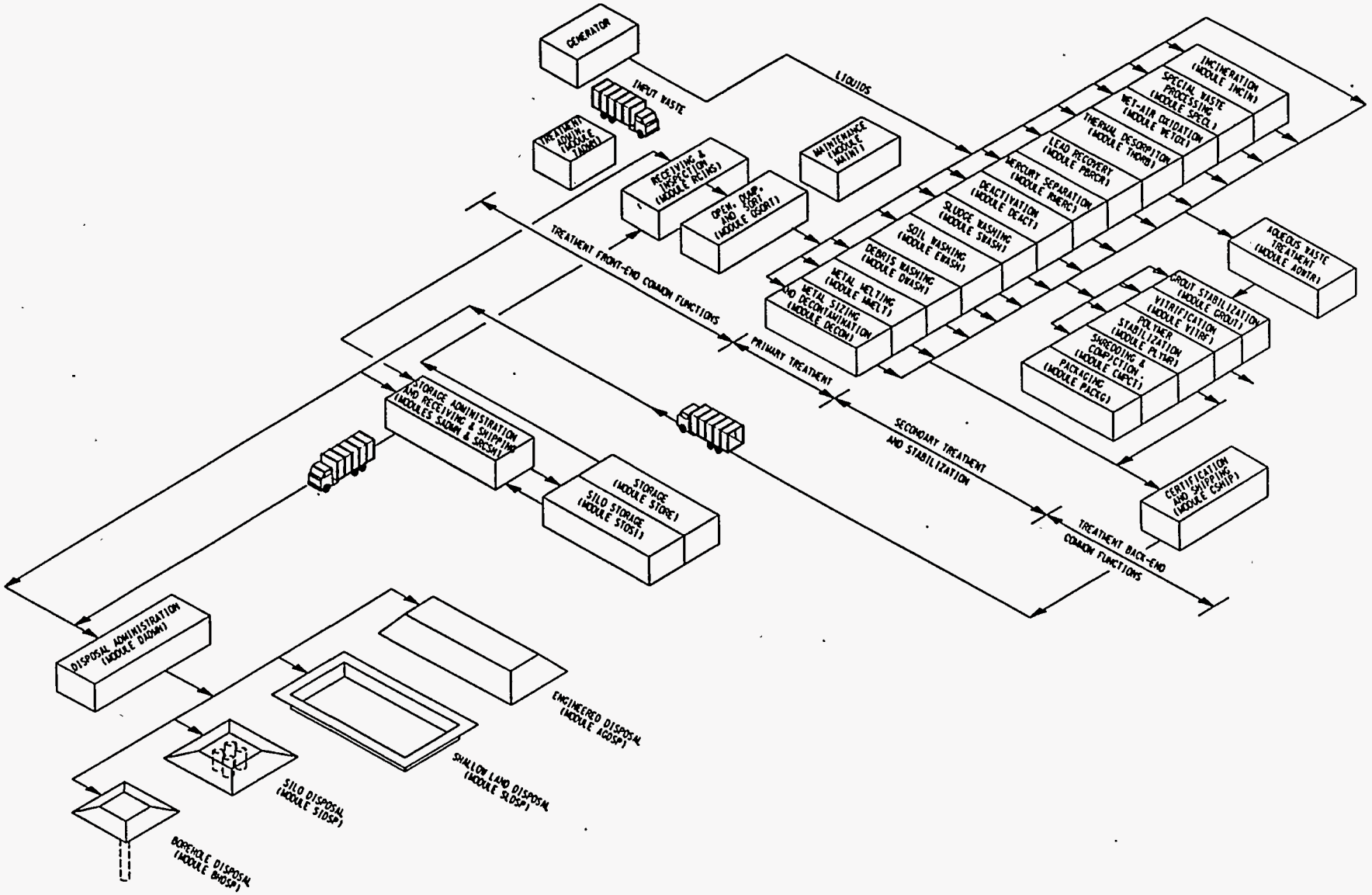


Figure 2-3. Integrated processing facility.

requirements, capacity limitations, capital and operating costs, and other information needed to provide a basis for the WMFCI data.

To the extent possible, major equipment costs in each module were taken from facilities that have been constructed or are in the advanced design stage. Before using costs from existing facilities, the data were adjusted to account for capacity differences and escalation. These cost validation steps establish a cost confidence level of plus or minus 30 percent for PLCC estimates developed from the WMFCI reports.

Facility construction costs were based on the current cost-per-square-foot rates for five typical building functional envelopes—low hazard, moderate hazard, alpha treatment, storage, and disposal functions—planned or under construction at the INEL.

Standard cost factors, based on those commonly used at the INEL, are used for construction contractor overhead, design, field inspection, construction management, project management, management reserve, and contingency. (Note: In this instance, "management reserve" denotes the amount of funding which management should retain to respond to unforeseen circumstances during construction, and "contingency" denotes the expected increase in cost due to changes in project scope since design is no further than a preconceptual stage.) These cost factors are applied to four components of facilities' life-cycle costs: preoperations, construction, O&M, and D&D. Tables 2-2, 2-3, and 2-4 provide a defined breakdown of the WMFCI cost estimate components and factors used for all preoperations phase, construction phase, and O&M phase costs, respectively. Decontamination and decommissioning phase costs are based on the type of facility and the square footage. For the disposal modules, D&D phase costs include all required closure and post-closure monitoring.

Table 2-2. WMFCI cost estimate components and factors for preoperations costs.

Components			Method of estimation	Remarks
1.0 Preoperations costs				Includes components 1.1 through 1.3: planning studies and tests, demonstration (pilot plant operations), and operations-budget-funded activities.
1.1 Planning studies and test costs				Estimated costs consist of components 1.1.1 through 1.1.5: manpower during studies and tests, testing equipment, equipment installation, project management before Title I design, and contingency. Manpower is defined as the effort needed for initial paper studies, bench-scale tests, secondary paper studies, project management before Title I design, and contingency.
	1.1.1	Manpower costs during research	Bottom-up estimate	Tables record the manpower required for initial studies, bench-scale tests, and follow-up studies; each category is entered as applicable for the tasks required to perform the process of the module.
	1.1.2	Equipment costs	Bottom-up estimate	Major equipment purchase costs were estimated using either vendor cost quotations, historical cost information, or engineering estimates. When vendor quotes were based on off-the-shelf equipment, they were multiplied by an appropriate adjustment factor to allow for quality level required for nuclear facility construction.
	1.1.3	Associated installation costs	Bottom-up estimate	Installation costs were estimated for each piece of equipment to include labor, construction equipment, small tools or supplies.
	1.1.4	Project management before Title I	10% of 1.1.1 through 1.1.3	Project management cost factor is applied to the construction cost total.
	1.1.5	Contingency	25% of 1.1.1 through 1.1.4	Contingency on all costs is 25%, given that costs are based on preconceptual design scope.
1.1 ***Subtotal***			Total of 1.1.1 through 1.1.5	
1.2 Demonstration costs				Estimated costs consist of components 1.2.1 through 1.2.8: manpower during demonstration, design, inspection, project management, construction, construction management, management reserve, and contingency.
	1.2.1	Manpower costs during demonstration	Bottom-up estimate	Tables record the manpower required during the demonstration, entered as applicable for the tasks required to perform the pilot plant set-up and operation of the module.

Table 2-2. (continued).

Components			Method of estimation	Remarks
	1.2.2	Design costs	30% of 1.2.5	Design cost factor is applied to the construction cost total.
	1.2.3	Inspection costs	7% of 1.2.5	Inspection cost factor is applied to the construction cost total.
	1.2.4	Project management	10% of 1.2.5	Project management cost factor is applied to the construction cost total.
	1.2.5	Construction costs		
	1.2.5.1	Building structure costs	Building unit rate costs: **Treatment (based on INEL)** Low hazard—$180/sq ft Moderate hazard—$420/sq ft Alpha cell with double confinement (maintenance galleries)—$1,200/sq ft Alpha cell with triple confinement (processing)—$1,500/sq ft **Storage (based on similar preconceptual facility designs)** Loading/office—$180/sq ft Lab area—$420/sq ft Warehousing—$47–73/sq ft **Disposal (based on Illinois LLW Site)** Low Hazard I—$165/sq ft Low Hazard II—$231/sq ft Medium Hazard—$346/sq ft	The building cost is developed by multiplying the estimated building space required for each unit operation by unit rates for that type function. The space estimates were developed from scoping study layout sketches for each module. The building rates are representative of construction costs at INEL to include the building and support systems, including utilities, fire protection, and containment.
	1.2.5.2	Process equipment costs	Bottom-up estimate	See remark at 1.1.2.
	1.2.5.3	Contractor indirect costs	29% of 1.2.5.1 + 1.2.5.2	Indirect cost factor is applied to the construction cost total.
	1.2.6	Construction management costs	17.1% of 1.2.5	Construction management cost factor is applied to the construction cost total.

Table 2-2. (continued).

Components			Method of estimation	Remarks
	1.2.7	Management reserve	10% of 1.2.5	Management reserve cost factor is applied to the construction cost total.
	1.2.8	Contingency	25% of 1.2.1 through 1.2.7	See remark at 1.1.5.
1.2 ***Subtotal***			Total of 1.2.1 through 1.2.8	
1.3 Operations-budget-funded activities				There are a number of components that cannot be charged to Line Item Construction Project funds. These activities include components 1.3.1 through 1.3.5: conceptual design, safety assurance documentation, National Environmental Policy Act (NEPA) permitting, preparation for operations, and project management prior to Title I design.
	1.3.1	Conceptual design	1.5% of 2.0	Conceptual design cost factor is applied to the construction cost total.
	1.3.2	Safety assurance	1% of 2.0	Safety assurance cost factor is applied to the construction cost total.
	1.3.3	NEPA permitting	$6 million for EIS; $1 million for environmental assessment (EA)	Larger facilities require EIS; smaller facilities, an EA. Costs are grouped into administrative module.
	1.3.4	Preparation for operations	100% of 3.0 (annual operating expenses)	Assumed to take 3 years: 1st year: 15% of 3.0 2nd year: 25% of 3.0 3rd year: 60% of 3.0
	1.3.5	Project management	10% of 1.3.1 through 1.3.4	See remark at 1.1.4.
1.3 ***Subtotal***			Total of 1.3.1 through 1.3.5	
1.0 Subtotal			Total of 1.1 through 1.3	

Table 2-3. WMFCI cost estimate components and factors for construction costs.

	Components			Method of estimation	Remarks
2.0	**Construction costs**				Consists of components 2.1 through 2.7: design, inspection, project management, construction, construction management, management reserve, and contingency.
2.1	Design costs			17–25% of 2.4	Design cost factor is applied to the construction cost total. Rate of design varies by complexity of facility.
2.2	Inspection costs			7% of 2.4	See remark 1.2.3.
2.3	Project management			10% of 2.4	See remark 1.2.4.
2.4	Construction costs				
		2.4.1	Building structure costs	Bottom-up estimate	See remark 1.2.5.1
		2.4.2	Equipment costs	Bottom-up estimate	See remark 1.1.2.
		2.4.3	Contractor indirect costs	29% of (2.4.1 + 2.4.2)	See remark at 1.2.5.3.
2.5	Construction management costs			17.1% of 2.4	See remark at 1.2.6.
2.6	Management reserve			10% of 2.4	See remark at 1.2.7.
2.7	Contingency			25% of 2.1 through 2.6	See remark at 1.1.5.
2.0	**Subtotal**			Total of 2.1 through 2.7	

Table 2-4. WMFCI cost estimate components and factors for operations and maintenance costs.

Components	Method of estimation	Remarks
3.0 Operations and maintenance costs		Includes components 3.1 through 3.5: operating manpower, utilities, materials, maintenance, and contingency.
3.1 Annual operating manpower costs	Bottom-up estimate	Estimated by management studies establishing the appropriate operating crew for that unit.
3.2 Annual utility costs	Bottom-up estimate	Costs for electric power, natural gas, or No.2 fuel oil estimated by multiplying the equipment horsepower and energy consumption rates by given energy cost unit rates.
3.3 Annual material costs	Bottom-up estimate	Consumables (shipping/disposal containers, additives, chemicals, and personnel protective equipment) are estimated based on the process flow rates given in the preconceptual design packages.
3.4 Annual maintenance costs	Annual maintenance equipment cost is 7% of 2.4.2 (original equipment capital cost). Annual maintenance labor is 250% of the annual maintenance equipment cost.	
3.5 Contingency	25% of 3.1 through 3.4	See remark at 1.1.5.
3.0 Subtotal	Total of 3.1 through 3.5	This is the annual cost of operations and maintenance.
Years of operation: xx		Depends upon specified years of operation. Full operational life assumed as 30 years.
Total xx year O&M costs	3.0 times xx years of operation.	

3. PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT COST-ESTIMATING METHODOLOGY

3.1 Description of Alternatives

Cost estimates for each PEIS alternative were developed at the module level for each site within the DOE complex. To facilitate the PEIS analytical process, each alternative is dedicated to a specific category of waste [TRUW, LLW, MLLW, HW, or high-level waste (HLW)]. For any alternative, every site that stores or generates waste in the specified category plays a role in management of that waste and, consequently, incurs some costs. The roles of the various sites can range from only packaging and shipping their own wastes to treating and disposing their own wastes and wastes from other sites. The contribution each site makes toward the cradle-to-grave management of a given waste type is defined in each alternative through designation of treatment, storage, and disposal locations for each site's waste. The alternatives generally cover the range of possible configurations from a centralized waste management strategy to a decentralized scenario. In a centralized configuration, most treatment and disposal operations would take place at one or two sites within the DOE complex. In a decentralized configuration, most sites will treat their own waste and several sites will operate disposal facilities.

Other parameters are also varied within the alternatives analyzed for a particular waste type; these include the level of treatment performed and the final waste form produced. Therefore, for each alternative, a unique set of responsibilities is defined for each site; this establishes the activities that must be performed at each site and provides the basis upon which the cost estimates are developed.

3.2 Development of Waste Loads

After the waste management activities to be performed at each site are defined for a particular alternative, the quantity of waste to be processed or handled through each module is calculated. This step is accomplished using a set of "raw" data that accounts for all waste stored and generated at each site. The waste volume information includes quantities of waste currently in storage and projections for future waste generation. Each classification of waste (TRUW, LLW, MLLW, HW, and HLW) is broken down into "treatability groups." The treatability groups, based on the characteristics of the waste, help define which treatment processes are necessary to meet regulatory requirements for that waste type. The raw data are transposed into the waste loads for each facility by applying the constraints and assumptions that are integral to the configuration designated for each alternative. Once a time factor is incorporated (for example, a 10-year operating period), the waste load for each module is converted to a processing rate. The processing rates (capacities) for each module are used to determine facility size and are the key factors used in developing the cost estimates.

3.3 Assessing Existing Facilities

A survey of existing and planned or approved waste management facilities at each site, and their capacities, was performed to provide the baseline for cost-estimating purposes. Where existing capacities were identified, the total required operating capacity was reduced by that amount so that only the minimum necessary new facility construction was costed. Since existing facilities and their

capacities were taken into account, the cost estimates developed for each alternative can be considered to be representative of actual future capital investments necessary to provide the additional capabilities required for the waste management operations outlined in each alternative.

In some alternatives where a homogeneous waste stream is currently being treated in a dedicated facility and actual operating costs are known, these actual costs were used in the PEIS cost estimates (rather than using bottom-up cost estimates for generic facilities designed to treat the same waste). These actual costs are reported in the "Special Costs" category in the tables found in Appendices A–D of this report.

3.4 Bounding Parameters and Assumptions

The PEIS alternatives generally assume that a 10-year implementation period is necessary to construct and start up the new waste management facilities required for each alternative, and that a 10-year operating period (immediately following the implementation period) will be used to work off the projected waste inventories.

The No Action Alternatives for each waste type were estimated using a unique set of assumptions. The No Action Alternatives (with some exceptions for storage and disposal) use existing facilities for 20 years. Generally, no new treatment facilities were constructed in these scenarios. Therefore, where projected waste loads exceeded existing treatment facility capacities, waste was directed to storage.

The HW alternatives use commercial treatment and disposal contractors for 20 years. Some onsite treatment and disposal costs were also evaluated.

Costs associated with treating quantities totaling less than 0.1 pounds per hour or disposing quantities totaling less than 0.1 cubic feet per hour were considered to be insignificant and were not included in the reported life-cycle estimates. These extremely small waste loads would likely be treated at a minimal cost at the bench-scale level or shipped to another facility and added to their waste loads.

The receiving and inspection module was used only for wastes received from another site for regionalized or centralized treatment. It was assumed that wastes generated onsite are characterized to the extent that inspection is not required and the waste can be transported directly to the treatment facility. Sampling for onsite waste characterization can be performed as necessary through a variety of modules: certification and shipping (found at all sites), administration (with laboratory–found at all treatment, storage, and disposal sites), and waste characterization (found at TRUW sites).

The open, dump, and sort module was used only for waste volumes currently in storage. It was assumed that these wastes are heterogeneous and will need to be sorted before treatment. It was further assumed that wastes presently being generated or wastes that will be generated in the future will be segregated by treatment need and will not require sorting.

Except for TRUW, it was assumed that treated wastes are accumulated in small batches (rail car or truckload quantities) and shipped directly for disposal, bypassing the need for storage. For TRUW, it was assumed that shipment could not be made directly to the Waste Isolation Pilot Plant

(WIPP) immediately following treatment; therefore, costs were included for 1 year of interim storage before transportation to WIPP.

3.5 Application of the Waste Management Facility Cost Information Methodology

Curves for cost versus capacity and FTEs versus capacity were developed for each module through a bottom-up estimating method. These curves were developed over a finite range of capacities (referred to as the "standard capacity range") that, at the time the range was selected, would fit the anticipated cost-estimating needs. The standard capacity range selected was specific to each module. Costs for all modules are based on a 48-week year, 3 shifts per day, 5 days per week, and 70 percent availability, for a total operating period of 4,032 hours per year, which is a "rating" of achievable production capacity possible in a typical work year.

With the release of updated waste data, the need for costs at capacities outside the standard capacity range of developed data became necessary. The following methodology was used to estimate the costs when the capacities fell outside the standard range for any particular module.

3.5.1 Cost Determination for Treatment Module Capacity Falling Outside the Standard Capacity Range

To estimate the costs for a treatment module at a capacity falling below the standard range, the following extrapolation method was used. An "economy of scale" function is assumed to exist beyond the upper and lower bounds of the capacity-to-cost curve (developed as discussed above). The upper and lower bounds are the waste processing throughput capacities of the largest and smallest standard commercially available processing equipment for the particular module being adjusted. The basic formula is shown below:

(Cost for higher/lower capacity) = (Cost for high/low bounding point) × [(waste throughput capacity of higher/lower requirement)/(waste throughput capacity of high/low bounding point)]$^{0.7}$.

The ratio of required throughput capacity to the throughput capacity of the high or low bounding point of the capacity-to-cost curve is raised to the 0.7 power. The resulting value was used to adjust the cost of the equipment, building requirements, operating labor, and operating materials. These adjusted costs were then used to estimate the costs associated for the lower-than-standard capacity. A module was never scaled down to below 10 percent of the smallest capacity in the standard range (to eliminate unrealistically small modules). Similar judgment would have been used when scaling to modules several times larger than the upper bounding capacity; however, waste loads were never proportionately that large, so this judgment was not significantly tested.

The use of the 0.7 power scaling factor was based on estimating methods presented by Peters and Timmerhaus (1968), and Reimer and Chai (1990).

For the incinerator module and the small generator front-end support module, costs were developed for a module of "minimum" size designation. This represents the smallest module size that

could be constructed with off-the-shelf equipment. For capacities falling between the minimum capacity and the lowest capacity in the standard capacity range, the costs were extrapolated below the standard range using the method described above. For capacities that fell at or below the minimum, the "minimum module" capital cost was used and operating costs were scaled down from the minimum capacity using the 0.7 power factor method. To eliminate an unrealistically small module for very small capacity requirements, the number of shifts was limited to 0.1 shift per workday.

For seven other nonalpha modules (aqueous waste treatment, wet-air oxidation, thermal desorption, deactivation, lead recovery, mercury separation, and polymer stabilization), the minimum module is the same as the lowest capacity in the standard range. Costs for these modules are calculated using the same method as described for incineration in the previous paragraph. For capacity below the range associated with these seven modules, capital costs from the minimum module were used and the operating costs were scaled down from the minimum capacity using the 0.7 power factor method.

To determine the costs of an engineered disposal module (AGDSP) or a shallow land disposal module (SLDSP) at a capacity falling below the standard range (18 to 126 cubic feet per hour), the following extrapolation method was used. For disposal capacities within the standard capacity range (1.44 to 5.9 cubic feet per hour) for the silo disposal module (SIDSP), costs for silo disposal were used. For disposal capacities falling between the standard ranges of the SIDSP and the AGDSP or SLDSP (5.9 to 18 cubic feet per hour), the ratio of the actual capacity to the lowest capacity of the AGDSP or SLDSP standard capacity range was raised to the 0.7 power. The resulting factor was used to adjust the cost of the equipment, building requirements, operating labor, and operating materials. These adjusted costs were then used to determine the associated costs. For disposal capacities falling below the standard capacity range of the SIDSP, costs were determined by scaling down with a factor developed by taking the ratio of the actual capacity and the smallest capacity in the standard range for the SIDSP raised to the 0.7 power.

3.5.2 Portable Module Costs

Small generator sites typically generate very small quantities of certain wastes. To treat these small quantities, installation of permanent treatment facilities is not always cost effective. To handle these small quantities, portable treatment modules were identified as an economical alternative. Portable modules were used for certification and shipping, decontamination, polymerization (which is capable of performing grout stabilization for very small volumes), thermal desorption, and wet air oxidation (which could substitute for incineration for very small volumes).

Costs for portable treatment modules were developed based on processing 2.5 cubic meters of waste per campaign. Waste to be processed is assumed to be at an incoming density of 40 pounds per cubic foot for all modules, except aqueous treatment, which uses 62.4 pounds per cubic foot. Each campaign was assumed to require 2 weeks' time, including setup, processing, and shutdown. Counting travel time and equipment maintenance time, the number of campaigns was limited to 12 per year. (If waste quantities were sufficiently high to exceed 12 campaigns per year, permanently installed modules were estimated.) The portable equipment was assumed to have a useful life of 5 years, or 60 campaigns. A host facility (warehouse, garage, or similar structure) with suitable utility support is required.

Costs associated with portable modules were developed on a campaign basis. Each portable module has its unique campaign cost, computed to include all programmatic life-cycle cost components.

3.6 Transportation Cost Estimates

Transportation costs were calculated for each alternative using mileage between sites (either by highway or rail) and mass quantities requiring transfer. Transportation costs are included for waste transfers between generator sites and treatment sites, between generator sites and disposal sites, and between treatment sites and disposal sites. Costs were compiled for each alternative for both truck and rail transportation and are shown in Tables 3-1 through 3-4. Transportation costs for most waste types are computed using linear regression formulas, where a fixed cost per trip (depending upon waste type) is multiplied by number of shipment trips and added to a variable cost-per-loaded-mile that has been multiplied by the total shipping mileage. The fixed and variable costs per waste type and background behind cost-estimate development are provided in Feizollahi et al. (1995). The cost-estimating process for the transportation of HLW is found in Appendix E.

3.7 Quality Assurance

The PEIS cost estimates were compiled for each alternative, and the detailed estimating backup information is documented in data packages retained in the PEIS engineering files. Each cost data package has been thoroughly reviewed before publication of any cost results. The quality reviews have verified that the estimating methodology was correctly and consistently applied, that the assumptions and alternative descriptions were followed, and that the results provide reasonable PLCC that can be used to compare the relative costs of the various alternatives. As with any very large study, errors may still exist although rigorous quality control and quality assurance have been practiced. Any identified discrepancies will be investigated and corrected.

Table 3-1. LLW transportation comparison.

	Truck			Rail		
Case no.	Total miles (per year)	Total shipments (per year)	Life-cycle cost ($M)	Total miles (per year)	Total shipments (per year)	Life-cycle cost ($M)
3	963,662	2,672	62.92	385,447	1,005	20.31
4	2,647,294	5,226	151.92	1,184,807	1,962	43.23
6	11,256,746	16,767	598.22	9,774,005	6,181	232.75
8	45,480,780	23,852	2,029.13	19,496,800	8,812	389.19
9	970,293	2,792	64.37	390,865	1,042	21.02
10	2,670,424	6,060	160.23	1,210,893	2,346	47.58
18	8,096,259	8,303	397.74	8,096,259	8,303	234.42
19	6,586,343	7,277	327.52	2,359,368	2,637	69.53

Table 3-2. Nonalpha MLLW transportation comparison.

	Truck			Rail		
Case no.	Total miles (per year)	Total shipments (per year)	Life-cycle cost ($M)	Total miles (per year)	Total shipments (per year)	Life-cycle cost ($M)
2a	11,015	32	.73	8,556	25	.49
4	46,451	163	3.41	34,145	91	1.84
7	127,645	287	7.66	77,206	143	3.05
10a	1,153,904	709	52.42	520,720	302	11.33
15	119,418	200	4.50	83,905	113	2.74
17	1,018,002	452	20.50	489,036	213	9.68

Table 3-3. Alpha MLLW transportation comparison.

	Truck			Rail		
Case no.	Total miles (per year)	Total shipments (per year)	Life-cycle cost ($M)	Total miles (per year)	Total shipments (per year)	Life-cycle cost ($M)
2a	4,592	6	.24	5,885	6	1.7
4	12,933	18	.68	13,955	12	.37
7	125,854	265	7.37	59,887	106	2.14
10a	341,561	390	10.57	156,246	153	4.58
15	57,642	96	2.09	67,267	91	2.18
17	333,085	300	8.67	157,156	121	3.90

Table 3-4. TRUW transportation comparison.

	Truck			Rail		
Case no.	Total miles (per year)	Total shipments (per year)	Life-cycle cost ($M)	Total miles (per year)	Total shipments (per year)	Life-cycle cost ($M)
2	1,750,955	1,137	217.24	860,157	574	306.67
3	1,230,715	802	153.03	568,177	406	205.57
4	1,749,635	1,138	217.19	859,582	575	306.70
5	1,281,013	843	160.20	595,168	425	216.19
6	1,049,913	685	131.06	478,068	345	174.09
7	1,644,581	1,039	202.61	767,914	522	273.68
8	1,374,581	881	170.16	634,914	443	227.74
9	1,519,495	985	188.43	744,137	496	265.25
11	2,498,520	1,252	342.30	1,173,590	626	1,134.44
12	2,458,040	1,251	336.75	1,165,710	627	1,130.37
13	2,268,640	1,105	310.80	1,050,710	554	1,017.18
14	2,550,300	1,325	349.39	1,216,320	664	1,185.01
15	2,350,100	1,179	321.96	1,093,620	591	1,065.12

4. COST ESTIMATE RESULTS FOR PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT ALTERNATIVES

The PLCC estimates were compiled for each alternative by summing the various cost components for each site, then summing the site results for each alternative. Both the cost and FTE results for all alternatives analyzed are presented in a series of tables found in Appendices A–D. Estimating results are broken out by site and provided in two separate formats.

The left-hand side of each table presents, by site, the cost (and manpower) estimates by Work Breakdown Structure (WBS) element. This breakdown enables analysis of the costs by each major phase of the life cycle, including preoperation, construction, O&M, and D&D.

The right-hand side of each table presents the results by function. This enables analysis by major category, including treatment, storage, and disposal, and some other waste-specific functions that were estimated. A column down the center of each table provides the total cost for each site and represents the total sum of both the columns to the right and the columns to the left.

The information contained in the above-referenced tables is summarized for each waste type and presented in the following sections.

4.1 Low-Level Waste

Appendix A provides a series of tables that summarize the cost and FTE results, by site, for each LLW alternative analyzed. The results are broken out for nonalpha and alpha waste. Thus, four tables are provided for each alternative: nonalpha costs, alpha costs, nonalpha FTEs, and alpha FTEs. These cost results are based on detailed estimates developed using the methodology described earlier in this report.

The special column under "costs by function" breaks out costs that were not calculated using the WMFCI. For the LLW alternatives, the special costs are for treatment and disposal of the saltstone at the Savannah River Site. Costs documented in Savannah River's draft site treatment plan were used for this waste stream.

Figures 4-1 and 4-2 present summaries of the life-cycle costs estimated for the LLW alternatives. Table 4-1 provides a description of each of the LLW alternatives analyzed.

4.2 Mixed Low-Level Waste

Appendix B provides a series of tables that summarize the cost and FTE results, by site, for each MLLW alternative analyzed. The results are broken out for nonalpha and alpha waste. Therefore, four tables are provided for each alternative: nonalpha costs, alpha costs, nonalpha FTEs, and alpha FTEs. These cost results are based on estimates developed using the methodology described earlier in this report.

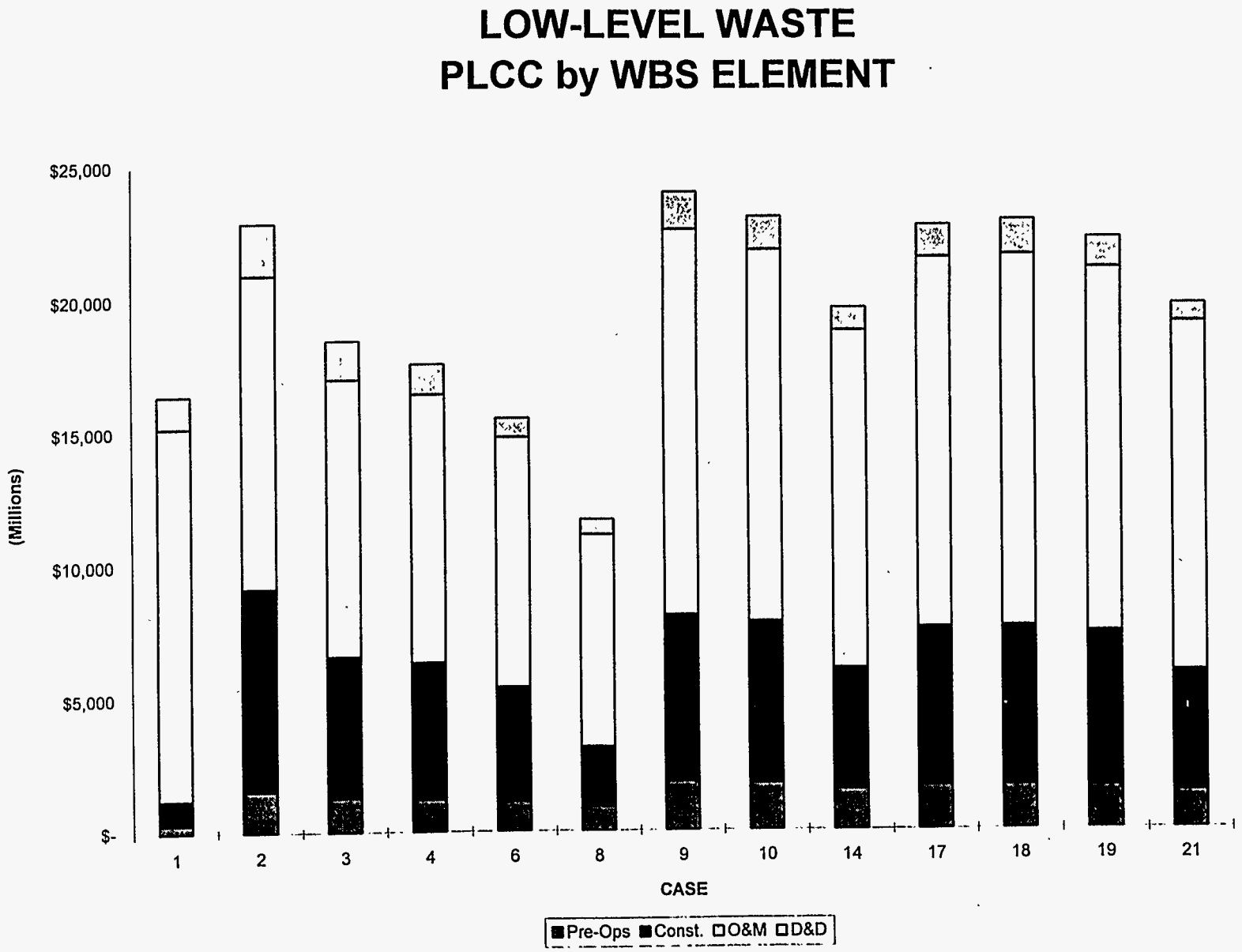


Figure 4-1. Cost estimates summary by WBS for LLW alternatives.

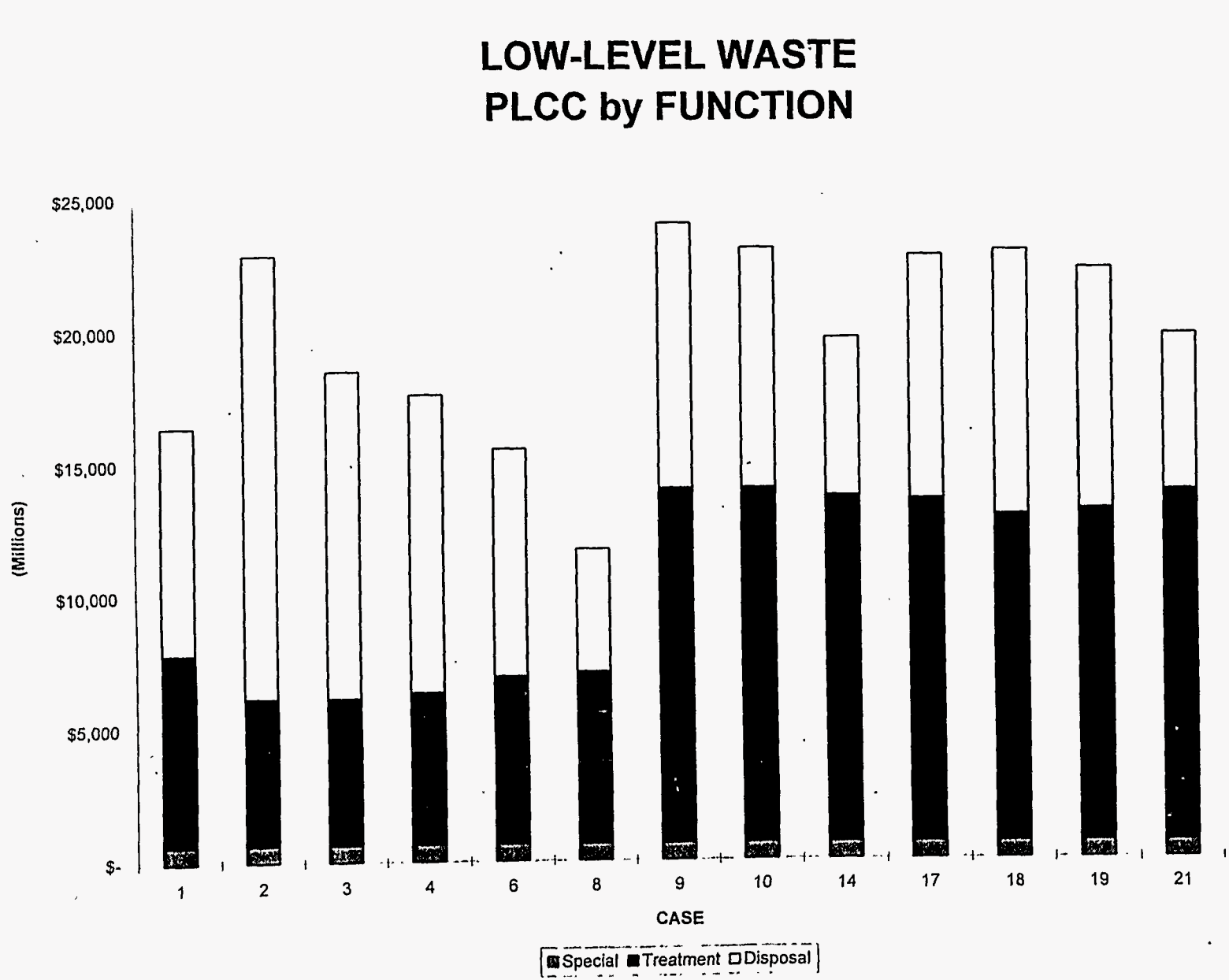


Figure 4-2. Cost estimates summary by function for LLW alternatives.

Table 4-1. Descriptions of LLW alternatives.

Case 1	No Action Alternative: All sites use existing and approved treatment facilities; dispose at six sites [HANF (Hanford Site), INEL, Los Alamos National Laboratory (LANL), Nevada Test Site (NTS), Oak Ridge Reservation (ORR), Savannah River Site (SRS)] per current arrangements.
Case 2	Current Program Alternative: All sites use planned treatment of facilities as well as existing and approved facilities; dispose onsite wastes at six sites per current arrangements.
Case 3	All sites minimum treat—stabilizing liquids and fines; dispose at 12 sites [Fernald Environmental Management Project (FEMP), HANF, INEL, LANL, Lawrence Livermore National Laboratory (LLNL), NTS, ORR, Paducah Gaseous Diffusion Plant (PAD), Pantex (PANT), Portsmouth Naval Shipyard (PORT), Rocky Flats Plant (RFP), SRS].
Case 4	All sites minimum treat—stabilizing liquids and fines; dispose at six nearest operating sites.
Case 6	All sites minimum treat—stabilizing liquids and fines; dispose at two (NTS, SRS) nearest operating sites.
Case 8	All sites minimum treat—stabilizing liquids and fines; dispose at one operating site (NTS).
Case 9	Eleven sites (HANF, INEL, LANL, ORR, SRS, PORT, PAD, FEMP, LLNL, PANT, RFP) incinerate, supercompact, size reduce and grout volume reducible wastes; all sites minimum treat other wastes; 12 sites dispose.
Case 10	Eleven sites incinerate, supercompact, size reduce and grout volume reducible wastes, all sites minimum treat other wastes; six sites dispose.
Case 14	Seven sites (HANF, INEL, LANL, ORR, SRS, PORT, RFP) incinerate, supercompact, size and reduce and grout volume reducible wastes; all sites minimum treat other wastes; one site dispose (HANF).
Case 17	Four sites (HANF, INEL, ORR, SRS) + NTS incinerate, supercompact, size reduce and grout volume reducible wastes; all sites minimum treat other wastes; onsite disposal at six sites.
Case 18	Four sites incinerate, supercompact, size reduce and grout volume reducible wastes; all sites minimum treat other wastes; 12 sites dispose.
Case 19	Four sites incinerate, supercompact, size reduce and grout volume reducible wastes; all sites minimum treat other wastes, six sites (HANF, INEL, LANL, NTS, ORR, SRS) dispose.
Case 21	One site incinerates, supercompacts, size reduces and grouts volume reducible wastes; all sites minimum treat other wastes; dispose at one site (HANF).

The special column under "costs by function" breaks out costs that were not calculated using the WMFCI. For the MLLW alternatives, the special costs are for the treatment and disposal of two special waste streams from Rocky Flats and the Oak Ridge Reservation. Cost estimates for treatment and disposal of these three waste streams were obtained from site-specific information and were not calculated using the WMFCI. This was done because these large-volume streams are unique and homogeneous, and adequate cost information was available.

Figures 4-3 and 4-4 present summaries of the life-cycle costs estimated for the MLLW alternatives. Table 4-2 provides a description of each of the MLLW alternatives analyzed.

4.3 Transuranic Waste

Appendix C provides a series of tables that summarize the cost and FTE results, by site, for each TRUW alternative analyzed. Alternatives 1 through 9 include costs and FTEs for managing CH TRUW. Alternatives 10 through 15 include costs and FTEs for managing RH TRUW. These cost results are based on detailed estimates developed using the methodology described earlier in this report.

"Costs by function" for TRUW include a breakout of retrieval and characterization, since these are unique activities that are required for any of the treatment scenarios under consideration for this waste type.

Figures 4-5 and 4-6 present summaries of the life-cycle costs estimated for the TRUW alternatives. Table 4-3 provides a description of each of the TRUW alternatives analyzed.

4.4 Hazardous Waste

Appendix D provides a series of tables that summarize the cost and FTE results, by site, for each HW alternative analyzed. These cost results are based on detailed estimates developed using the methodology described earlier in this report. "Costs by function" for HW include a breakout of offsite commercial treatment and disposal costs.

Table 4-4 presents a summary of the life-cycle costs estimated for the HW alternatives. Table 4-5 provides a description of each of the HW alternatives analyzed.

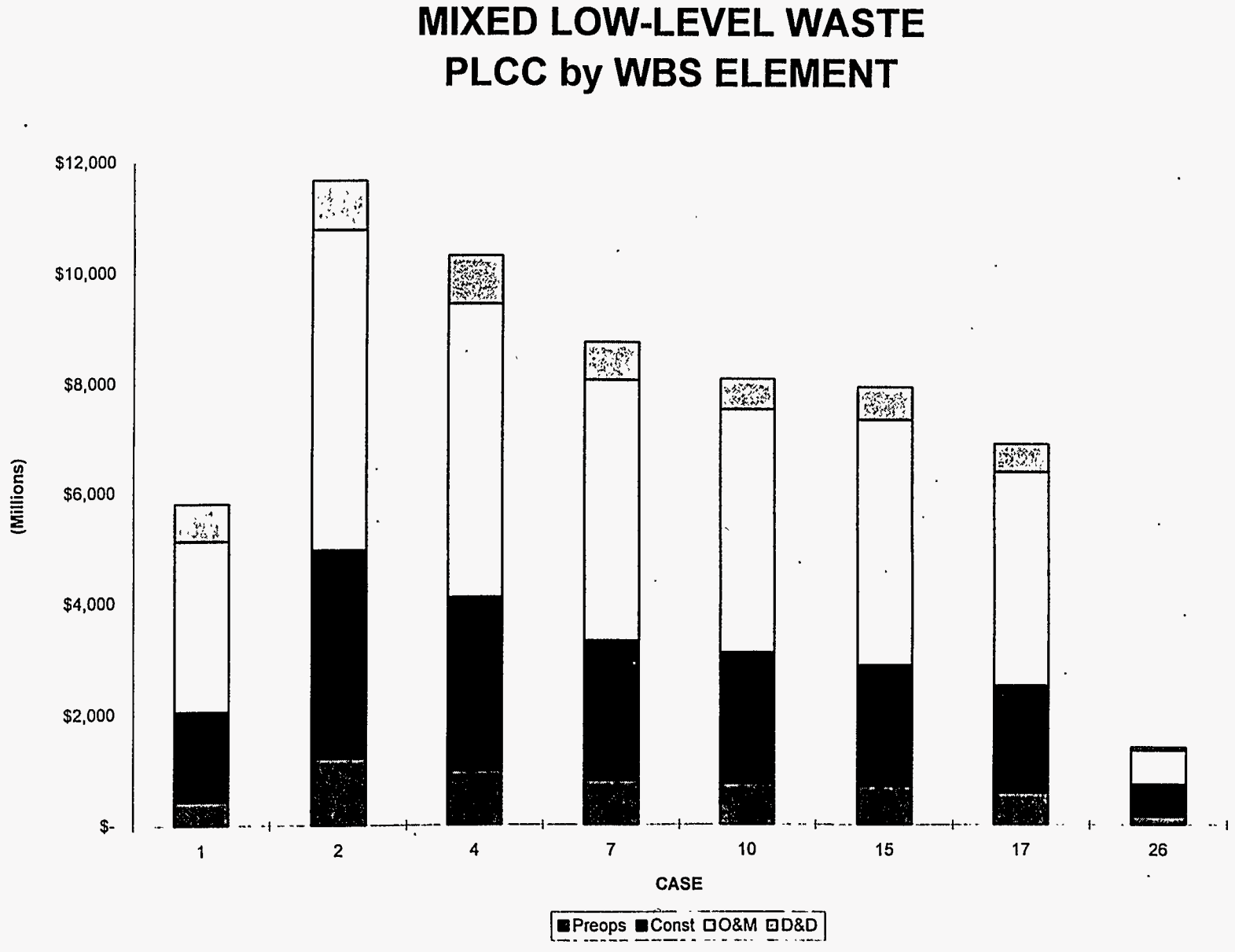


Figure 4-3. Cost estimates summary by WBS for MLLW alternatives.

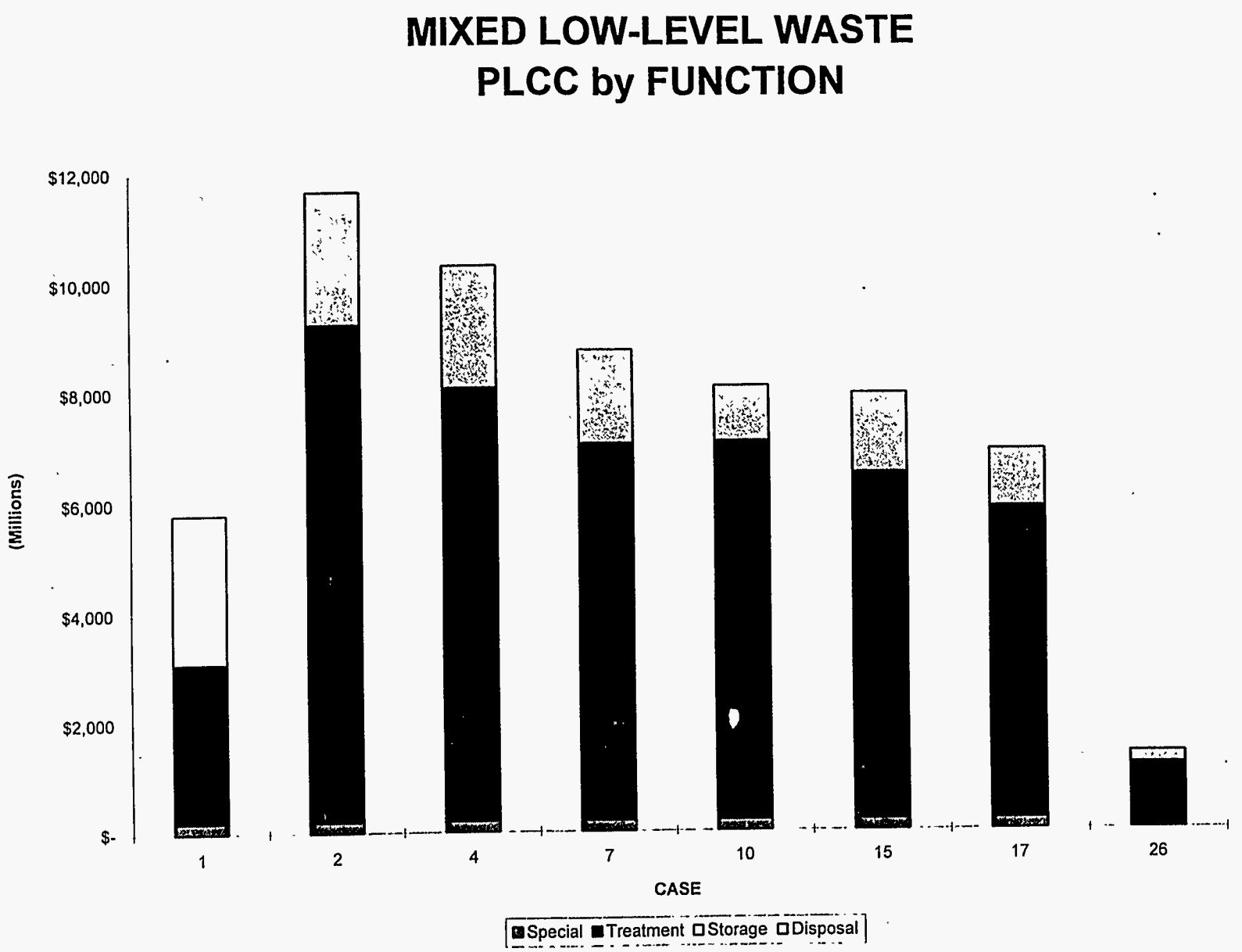


Figure 4-4. Cost estimates summary by function for MLLW alternatives.

Table 4-2. Descriptions of MLLW alternatives.

Case 1	No Action Alternative—All sites use existing and approved treatment facilities; store residues from treatment indefinitely.
Case 2	Fifty sites treat using base option; 13 sites dispose [HANF, FEMP, INEL, LANL, LLNL, Middlesex Sampling Plant (MSP), NTS, ORR, PANT, PAD, Portsmouth Gaseous Diffusion Plant (PORTS), RFP, SRS].
Case 4	Eleven sites (HANF, INEL, LANL, ORR, SRS, PORTS, PAD, FEMP, LLNL, PANT, RFP) treat using base option [onsite treatment at Energy Technology Engineering Center (ETEC) & MSP]; 13 sites dispose.
Case 7	Seven sites (HANF, INEL, LANL, OR, SRS, PORTS, RFP) treat using base option; six sites (HANF, INEL, NTS, LANL, ORR, SRS) dispose.
Case 10	Seven sites treat using base option; one site (HANF) disposes.
Case 15	Four sites treat; six sites dispose.
Case 17	One site (HANF) treat, one site (HANF) disposes.
Case 26	RH treatment at four sites (HANF, INEL, ORR, SRS); four sites dispose RH onsite.

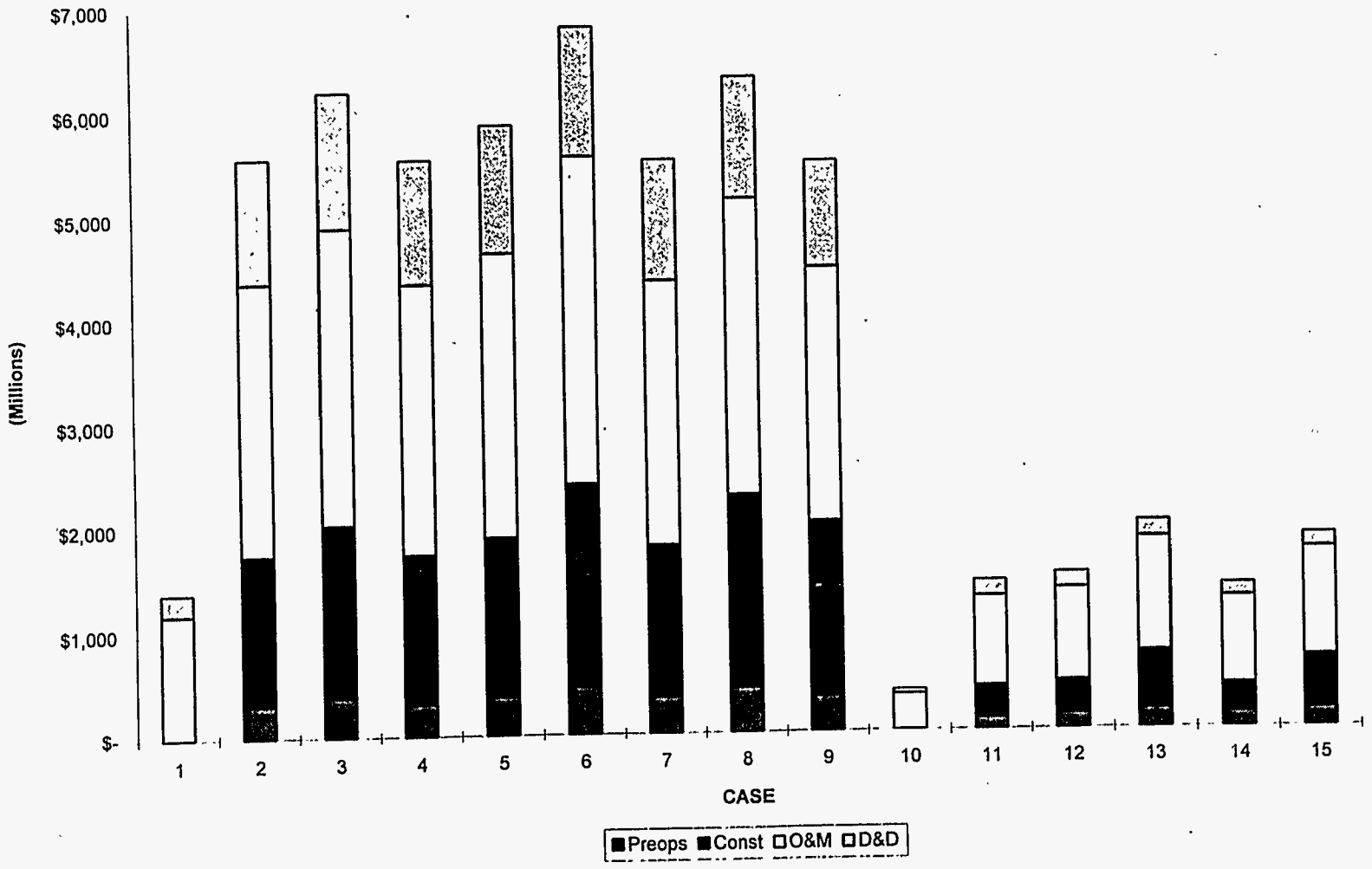


Figure 4-5. Cost estimates summary by WBS for TRUW alternatives.

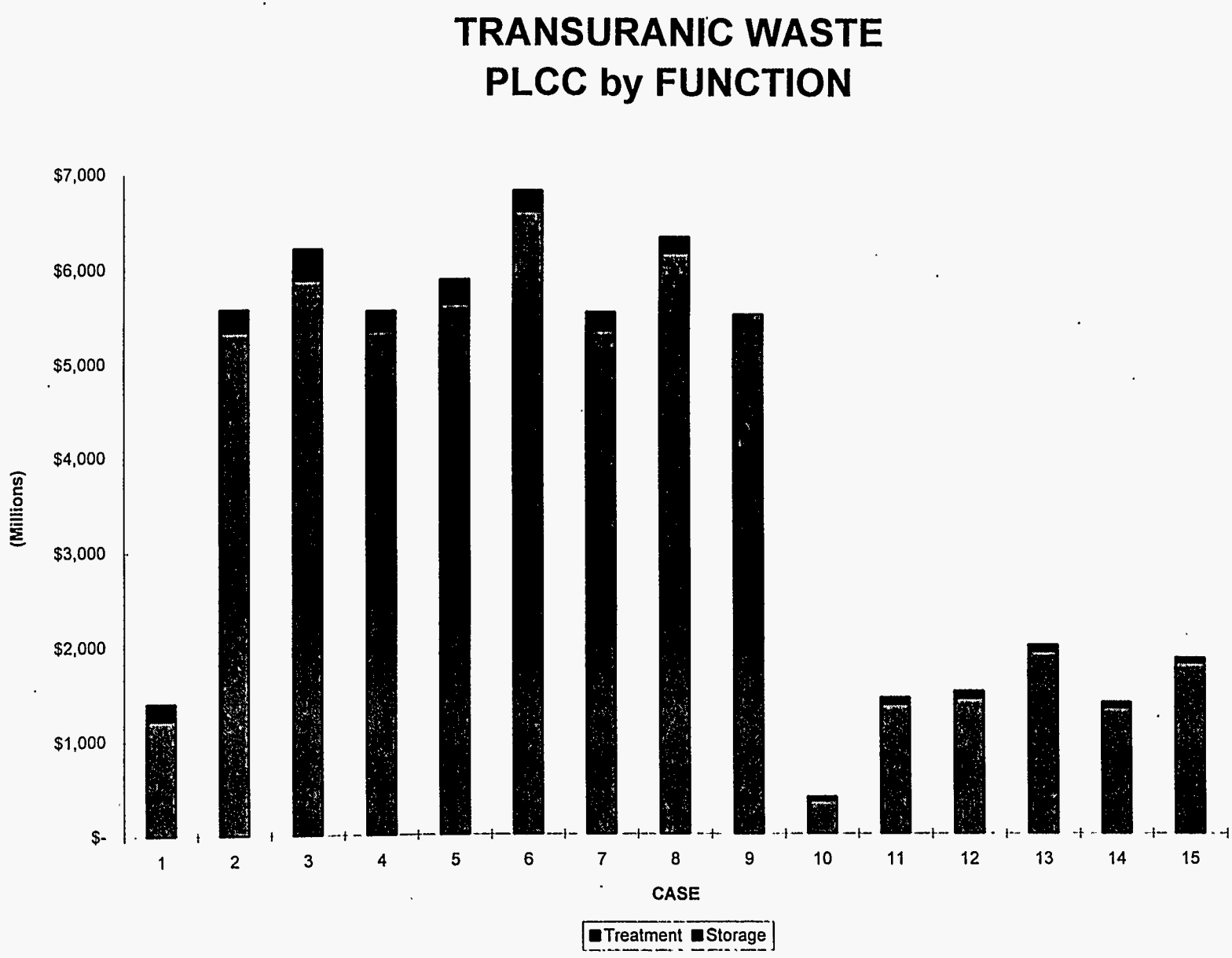


Figure 4-6. Cost estimates by function for TRUW alternatives.

Table 4-3. Descriptions of TRUW alternatives.

Case 1	No Action Alternative—CH TRUW: Use existing facilities to package CH TRUW and store indefinitely.
Case 2	Current Program/Decentralized—CH TRUW—16 Sites—Option 1: Process and package CH TRUW to meet current WIPP waste acceptance criteria (WAC) at 16 sites with CH TRUW [Argonne National Laboratory-East (ANL-E), ETEC, HANF, INEL/Argonne National Laboratory-West (ANL-W), LANL, Lawrence Berkeley Laboratory (LBL), LLNL, MOUND, NTS, ORR, PAD, RFP, Sandia National Laboratory (SNL)/Inhalation Toxicology Research Institute (ITRI), SRS, University of Missouri (UMO), West Valley Demonstration Project (WVDP)] and at D&D or environmental restoration (ER) sites. Store onsite until shipped to WIPP for disposal.
Case 3	Decentralized—CH TRUW 16 Sites—Option 2: Treat to intermediate level greater than required to meet current WIPP WAC (shredding, grouting, and changing container to reduce gas generation) at 16 sites with CH TRUW (ANL-E, ETEC, HANF, INEL/ANL-W, LANL, LBL, LLNL, MOUND, NTS, ORR, PAD, RFP, SNL/ITRI, SRS, UMO, WVDP) and at ER/D&D sites. Ship to WIPP for disposal.
Case 4	Regionalized—CH TRUW—10 Sites—Option 1: Ship CH TRUW from smaller sites (ETEC, LBL, PAD, SNL/ITRI, UMO, WVDP), and ER/D&D sites to ten larger sites (ANL-E, HANF, INEL/ANL-W, LANL, LLNL, MOUND, NTS, ORR, RFP, SRS) for interim storage. Ship from larger sites to WIPP.
Case 5	Regionalized—CH TRUW—Five Sites—Option 2: Ship CH TRUW from 11 small generators (ANL-E, ETEC, LBL, LLNL, MOUND, NTS, ORR, PAD, SNL/ITRI, UMO, WVDP) and ER/D&D sites to five sites for treatment; treat to intermediate at the five sites; and ship from the five sites to WIPP for disposal.
Case 6	Regionalized—CH TRUW—Five Sites—Option 3: Ship CH TRUW from 11 small generators and ER/D&D sites to five sites for treatment; treat to land disposal restriction (LDR) at the five sites; and ship from the five sites to WIPP for disposal.
Case 7	Regionalized—CH TRUW—Three Sites—Option 2: Ship CH TRUW from 13 sites (ANL-E, ETEC, LANL, LBL, LLNL, MOUND, NTS, ORR, PAD, RFP, SNL/ITRI, UMO, WVDP) and ER/D&D sites to three sites (HANF, INEL/ANL-W, SRS) for treatment. Treat to intermediate level at the three sites. Ship from the three sites to WIPP for disposal.
Case 8	Regionalized—CH TRUW—Three Sites—Option 3: Ship CH TRUW from 13 sites and ER/D&D sites to 33 sites for treatment. Treat to LDR at the three sites. Ship from the three sites to WIPP for disposal.
Case 9	Centralized—CH TRUW—One Site—Option 3: Treat CH TRUW to LDR at one site (WIPP) and dispose at WIPP.

Table 4-3. (continued).

Case 10	No Action Alternative—RH TRUW: Use existing facilities to package RH TRUW and store indefinitely.
Case 11	Current Program/Decentralized—RH TRUW—Five Sites—Option 1: Process and package RH TRUW at five sites with RH TRUW (ANL-E, HANF, INEL/ANL-W, LANL, ORR) and at ER/D&D sites to meet current WIPP WAC. Ship from the five sites to WIPP for disposal.
Case 12	Regionalized—RH TRUW—Four Sites—Option 2: Ship RH TRUW from ANL-E and ER/D&D sites to four sites (HANF, INEL/ANL-W, LANL, ORR). Treat and package RH TRUW to intermediate level at the four sites. Ship from the four sites to WIPP disposal.
Case 13	Regionalized—RH TRUW—Four Sites—Option 3: Ship RH TRUW from ANL-E and ER/D&D sites to four sites (HANF, INEL/ANL-W, LANL, ORR). Treat RH TRUW to LDR at the four sites. Ship from the four sites to WIPP for disposal.
Case 14	Regionalized—RH TRUW—Two Sites—Option 2: Ship RH TRUW to two sites (HANF, ORR). Treat to intermediate level at the two sites. Ship from the two sites to WIPP for disposal.
Case 15	Regionalized—RH TRUW—Two Sites—Option 3: Ship RH TRUW to two sites. Treat to LDR at the two sites. Ship from the two sites to WIPP for disposal.

Table 4-4. Cost estimates summary for HW alternatives.

	Cost by Work Breakdown Structure				Cost by Function		
Case	1.0 Preoperations ($K)	2.0 Construction ($K)	3.0 Operations & Maintenance ($K)	4.0 Decontamination & Decommissioning ($K)	In-House Treatment ($K)	In-House Disposal ($K)	Commercial Treat & Disposal ($K)
2	18,341	74,699	172,268	5,914	237,584	6,007	27,631
3	17,693	83,124	182,738	5,314	232,522	5,772	50,575
4	5,908	28,080	60,311	1,930	75,574	2,336	18,319

Table 4-5. Descriptions of HW alternatives.

Case 2	(1)	Conduct TSD HW operations at two DOE installations (INEL and ORR). Utilize organic destruction stabilization, neutralization, and organic removal/recovery technologies to treat approximately 80% of complex-wide generated HW (100% of organic HW) by packaging and shipping HW to centrally-located TSD facilities at either INEL or ORR. Package and ship appropriate HW from: • HANF, LANL, PANT, SNL-Albuquerque, and LLNL to INEL • KCP, ANL-E, Fermi, and SRS to ORR.
	(2)	Package and ship all remaining HW to a limited number of commercial-permitted HW TSD facilities.
Case 3	(1)	Treat and dispose of approximately 50% of the complex-wide generated HW at the designated regionally representative DOE TSD facilities.
	(2)	Utilize organic destruction and organic removal/recovery technologies to treat approximately 50% of complex-wide generated HW by packaging and shipping HW from 11 to 5 sites (LANL, INEL, HANF, SRS, and ORR). To accomplish this, two-thirds of the waste requiring organic destruction or removal/recovery at each of the 11 sites will be sent to the 5 DOE sites while one-third of this waste will be sent to commercial contractors. Package and ship the appropriate HW from: • PANT and SNL-A to LANL • LLNL to HANF and/or INEL • ANL-E, Fermi, and KCP to ORR and/or SRS.
	(3)	Package and ship all remaining HW to commercial-permitted HW TSD facilities.
Case 4	(1)	Analyze existing and RCRA-permitted TSD facilities at HANF, INEL, KCP, LANL, LLNL, ORR, PANT, SNL-Albuquerque, ANL-E, Fermi, and SRS.
	(2)	Minimize generation of HW to the extent possible.
	(3)	Continue to manifest and package HW for shipment to commercial-permitted HW TSD vendors.
	(4)	Optimize use of commercial TSD vendors by DOE • Eliminate brokering of HW • Improve DOE's oversite function of utilizing commercial vendors.
	(5)	Expand DOE TSD capacities by including the "approved" technologies identified in DOE's five-year complex-wide and/or sites-specific plan.

5. REFERENCES

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Appendix A

Low-Level Waste

Table A-1. Nonalpha LLW Case #1 - PLCC Summary.

Treatment Scenario - No Action Option

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
AMES	x		$ 2.09	$ 3.99	$ 7.62	$ 0.67	$ 14.37	$ -	$ 14.37	$ -
ANLE	x		$ 7.84	$ 27.75	$ 101.11	$ 5.01	$ 141.70	$ -	$ 141.70	$ -
ANLW	x		$ 2.60	$ 6.72	$ 183.15	$ 5.14	$ 197.61	$ -	$ 197.61	$ -
BAPL	x		$ 11.17	$ 34.18	$ 158.42	$ 7.02	$ 210.78	$ -	$ 210.78	$ -
FNAL	x		$ 6.09	$ 22.74	$ 94.28	$ 7.34	$ 130.45	$ -	$ 130.45	$ -
HANF	x	x	$ 19.02	$ 63.20	$ 2,660.43	$ 277.64	$ 3,020.30	$ -	$ 571.66	$ 2,448.64
INEL	x	x	$ 11.64	$ 36.78	$ 1,038.00	$ 85.50	$ 1,171.92	$ -	$ 578.30	$ 593.62
ITRI	x		$ 3.12	$ 7.98	$ 25.08	$ 1.35	$ 37.54	$ -	$ 37.54	$ -
KAPL-S	x		$ 15.00	$ 41.59	$ 224.42	$ 9.34	$ 290.35	$ -	$ 290.35	$ -
KCP	x		$ 1.75	$ 2.65	$ 3.38	$ 0.48	$ 8.26	$ -	$ 8.26	$ -
LANL	x	x	$ 14.95	$ 42.49	$ 1,094.23	$ 125.20	$ 1,276.88	$ -	$ 291.73	$ 985.15
LBL	x		$ 4.17	$ 14.62	$ 66.31	$ 7.44	$ 92.54	$ -	$ 92.54	$ -
LLNL	x		$ 5.31	$ 19.96	$ 164.24	$ 11.89	$ 201.40	$ -	$ 201.40	$ -
MOUND	x		$ 11.58	$ 35.19	$ 165.49	$ 7.66	$ 219.93	$ -	$ 219.93	$ -
NRF	x		$ 12.31	$ 36.39	$ 178.13	$ 7.71	$ 234.55	$ -	$ 234.55	$ -
NTS		x	$ -	$ -	$ 1,186.32	$ 166.48	$ 1,352.79	$ -	$ -	$ 1,352.79
ORR	x	x	$ 35.96	$ 116.45	$ 1,837.49	$ 199.93	$ 2,189.82	$ -	$ 978.79	$ 1,211.03
PAD	x		$ 13.85	$ 39.41	$ 237.60	$ 12.09	$ 302.95	$ -	$ 302.95	$ -
PANT	x		$ 19.08	$ 53.47	$ 321.04	$ 19.61	$ 413.20	$ -	$ 413.20	$ -
PORTS	x		$ 25.76	$ 79.33	$ 402.59	$ 28.17	$ 535.86	$ -	$ 535.86	$ -
PIN	x		$ 3.77	$ 2.65	$ 5.54	$ 0.48	$ 12.43	$ -	$ 12.43	$ -
PPPL	x		$ 1.75	$ 2.65	$ 3.01	$ 0.48	$ 7.88	$ -	$ 7.88	$ -
RFP	x		$ 10.13	$ 32.23	$ 140.65	$ 6.49	$ 189.51	$ -	$ 189.51	$ -
RMI	x		$ 15.12	$ 41.83	$ 249.43	$ 12.80	$ 319.17	$ -	$ 319.17	$ -
SLAC	x		$ 5.82	$ 21.36	$ 68.02	$ 3.66	$ 98.87	$ -	$ 98.87	$ -
SNLA	x		$ 4.77	$ 17.27	$ 50.19	$ 2.98	$ 75.21	$ -	$ 75.21	$ -
SNLL	x		$ 2.62	$ 6.64	$ 16.90	$ 1.15	$ 27.32	$ -	$ 27.32	$ -
SRS	x	x	$ 34.61	$ 109.18	$ 3,219.79	$ 216.22	$ 3,579.80	$ 626.00	$ 946.82	$ 2,006.98
	TOTAL		$ 301.90	$ 918.70	$ 13,902.85	$ 1,229.91	$ 16,353.38	$ 626.00	$ 7,129.17	$ 8,598.21
						Transportation	$ -			
						TOTAL COST	$ 16,353.38			

Table A-2. Alpha LLW Case #1 - PLCC Summary

Treatment Scenario - No Action Option

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
MOUND	x		$ -	$ -	$ 24.80	$ 1.72	$ 26.52	$ -	$ 26.52	$ -
RFP	x		$ -	$ -	$ 53.58	$ 5.06	$ 58.64	$ -	$ 58.64	$ -
	TOTAL		$ -	$ -	$ 78.38	$ 6.78	$ 85.16	$ -	$ 85.16	$ -
						Transportation	$ -			
						TOTAL COST	$ 85.16			

Table A-3. Nonalpha LLW Case #1 - FTE Summary

Treatment Scenario - No Action Option

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
AMES	x		13	15	46	3	77	77	0
ANLE	x		48	103	575	20	746	746	0
ANLW	x		16	26	1,192	21	1,255	1,255	0
BAPL	x		68	128	755	28	979	979	0
FNAL	x		37	85	567	29	718	719	0
HANF	x	x	115	250	13,013	1,111	14,488	3,444	11,044
INEL	x	x	71	140	6,181	342	6,733	3,335	3,399
ITRI	x		19	30	152	5	207	207	0
KAPL-S	x		91	156	963	37	1,247	1,247	0
KCP	x		11	10	20	2	42	42	0
LANL	x	x	90	161	5,461	501	6,214	1,314	4,900
LBL	x		26	55	413	30	524	523	0
LLNL	x		33	75	1,046	48	1,202	1,202	0
MOUND	x		70	132	790	31	1,023	1,023	0
NRF	x		75	136	817	31	1,059	1,059	0
NTS		x	0	0	6,045	666	6,711	0	6,711
ORR	x	x	216	455	9,523	800	10,995	5,272	5,722
PAD	x		84	148	1,120	48	1,400	1,401	0
PANT	x		115	203	1,609	78	2,005	2,006	0
PORTS	x		155	309	2,075	113	2,652	2,652	0
PIN	x		23	10	34	2	69	69	0
PPPL	x		11	10	17	2	40	40	0
RFP	x		61	120	702	26	910	910	0
RMI	x		91	157	1,114	51	1,414	1,414	0
SLAC	x		36	80	409	15	539	539	0
SNLA	x		29	65	304	12	410	410	0
SNLL	x		16	25	102	5	148	148	0
SRS	x	x	209	427	12,691	865	14,192	5,108	9,083
	TOTAL		1,830	3,512	67,736	4,919	77,998	37,140	40,859
						TOTAL FTE	77,998		

Table A-4. Alpha LLW Case #1 - FTE Summary

Treatment Scenario - No Action Option

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
MOUND	X		0	0	162	7	169	169	0
RFP	X		0	0	338	20	358	358	0
	TOTAL		0	0	500	27	527	527	0
						TOTAL FTE	527		

Table A-5. Nonalpha LLW Case #2 - PLCC Summary

Treatment Scenario - Minimum Treatment

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
AMES	x		$ 2.12	$ 3.73	$ 4.55	$ 4.80	$ 15.19	$ -	$ 15.19	$ -
ANLE	x	x	$ 30.17	$ 93.04	$ 177.23	$ 88.51	$ 388.94	$ -	$ 105.83	$ 283.10
ANLW	x		$ 21.25	$ 56.19	$ 164.37	$ 14.16	$ 255.98	$ -	$ 255.98	$ -
BAPL	x		$ 15.71	$ 42.96	$ 118.32	$ 9.76	$ 186.74	$ -	$ 186.74	$ -
FNAL	x		$ 9.36	$ 35.49	$ 61.45	$ 10.91	$ 117.21	$ -	$ 117.21	$ -
HANF	x	x	$ 264.21	$ 1,622.29	$ 2,081.79	$ 297.08	$ 4,265.37	$ -	$ 452.69	$ 3,812.67
INEL	x	x	$ 61.66	$ 100.24	$ 521.73	$ 116.40	$ 800.03	$ -	$ 187.95	$ 612.07
ITRI	x		$ 3.80	$ 14.16	$ 17.29	$ 4.80	$ 40.05	$ -	$ 40.05	$ -
KAPL-S	x		$ 18.91	$ 52.88	$ 144.91	$ 13.28	$ 229.98	$ -	$ 229.98	$ -
KCP	x		$ 1.76	$ 2.46	$ 1.63	$ 4.80	$ 10.65	$ -	$ 10.65	$ -
LANL	x	x	$ 126.90	$ 817.45	$ 874.51	$ 191.07	$ 2,009.94	$ -	$ 279.70	$ 1,730.24
LBL	x		$ 6.87	$ 25.12	$ 42.49	$ 10.80	$ 85.28	$ -	$ 85.28	$ -
LLNL	x	x	$ 31.83	$ 54.55	$ 202.01	$ 70.17	$ 358.56	$ -	$ 134.04	$ 224.52
MOUND	x		$ 26.03	$ 74.62	$ 204.21	$ 17.14	$ 322.00	$ -	$ 322.00	$ -
NRF	x		$ 17.38	$ 47.67	$ 132.29	$ 10.38	$ 207.71	$ -	$ 207.71	$ -
ORR	x	x	$ 187.09	$ 1,131.88	$ 1,344.06	$ 202.87	$ 2,865.89	$ -	$ 711.28	$ 2,154.61
PAD	x	x	$ 76.93	$ 340.18	$ 545.74	$ 128.41	$ 1,091.26	$ -	$ 285.71	$ 805.55
PANT	x	x	$ 58.59	$ 96.91	$ 433.59	$ 104.20	$ 693.30	$ -	$ 201.44	$ 491.85
PORTS		x	$ 76.52	$ 490.68	$ 513.00	$ 140.63	$ 1,220.84	$ -	$ -	$ 1,220.84
PIN	x		$ 1.97	$ 3.73	$ 3.26	$ 4.80	$ 13.77	$ -	$ 13.77	$ -
PPPL	x		$ 3.05	$ 4.59	$ 11.82	$ 9.74	$ 29.20	$ -	$ 29.20	$ -
RFP	x	x	$ 60.48	$ 96.31	$ 451.99	$ 96.10	$ 704.88	$ -	$ 189.65	$ 515.23
RMI	x		$ 26.92	$ 75.60	$ 212.07	$ 19.81	$ 334.39	$ -	$ 334.39	$ -
SLAC	x		$ 8.63	$ 29.32	$ 56.35	$ 9.81	$ 104.12	$ -	$ 104.12	$ -
SNLA	x	x	$ 18.65	$ 33.09	$ 87.54	$ 64.03	$ 203.31	$ -	$ 66.67	$ 136.64
SNLL	x		$ 4.38	$ 13.20	$ 21.68	$ 9.74	$ 49.00	$ -	$ 49.00	$ -
SRS	x	x	$ 332.64	$ 2,091.16	$ 3,053.42	$ 209.76	$ 5,686.98	$ 626.00	$ 904.19	$ 4,156.79
WVDP		x	$ 43.89	$ 184.78	$ 292.83	$ 92.59	$ 614.10	$ -	$ -	$ 614.10
	TOTAL		$ 1,537.71	$ 7,634.29	$ 11,776.15	$ 1,956.53	$ 22,904.68	$ 626.00	$ 5,520.46	$ 16,758.22
						Transportation	$ -			
						TOTAL COST	$ 22,904.68			

Table A-6. Nonalpha LLW Case #2 - FTE Summary

Treatment Scenario - Minimum Treatment

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
AMES	x		13	13	28	19	74	74	0
ANLE	x	x	182	371	1,001	354	1,909	510	1,398
ANLW	x		128	214	917	57	1,316	1,316	0
BAPL	x		95	162	500	39	796	796	0
FNAL	x		57	132	379	44	612	612	0
HANF	x	x	1,586	6,869	10,368	1,188	20,012	2,516	17,496
INEL	x	x	371	387	2,659	466	3,882	853	3,029
ITRI	x		24	52	105	19	199	199	0
KAPL-S	x		114	201	703	53	1,071	1,071	0
KCP	x		11	9	10	19	49	49	0
LANL	x	x	762	3,430	4,260	764	9,217	1,355	7,862
LBL	x		42	93	271	43	450	450	0
LLNL	x	x	192	203	1,292	281	1,967	746	1,221
MOUND	x		157	282	1,059	69	1,567	1,567	0
NRF	x		105	179	628	42	954	954	0
ORR	x	x	1,123	4,763	7,081	811	13,779	3,951	9,828
PAD	x	x	462	1,398	2,909	514	5,283	1,388	3,895
PANT	x	x	352	378	2,511	417	3,658	1,114	2,544
PORTS		x	459	2,064	2,573	563	5,659	0	5,659
PIN	x		13	13	20	19	65	65	0
PPPL	x		19	16	78	39	152	152	0
RFP	x	x	364	368	2,489	384	3,606	968	2,637
RMI	x		162	286	1,152	79	1,679	1,679	0
SLAC	x		52	109	336	39	537	537	0
SNLA	x	x	113	124	544	256	1,036	342	694
SNLL	x		27	48	138	39	252	252	0
SRS	x	x	1,996	8,835	12,240	839	23,911	4,739	19,172
WVDP		x	263	769	1,659	370	3,062	0	3,062
	TOTAL		9,244	31,771	57,911	7,826	106,751	28,255	78,496
						TOTAL FTE	106,751		

Table A-7. Nonalpha LLW Case #3 - PLCC Summary

Treatment Scenario - Minimum Treatment

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
AMES	x		$ 2.12	$ 3.73	$ 4.55	$ 4.80	$ 15.19	$ -	$ 15.19	$ -
ANLE	x		$ 9.05	$ 30.08	$ 60.96	$ 5.74	$ 105.83	$ -	$ 105.83	$ -
ANLW	x		$ 21.28	$ 57.02	$ 164.37	$ 16.79	$ 259.46	$ -	$ 259.46	$ -
BAPL	x		$ 15.71	$ 42.96	$ 118.32	$ 9.76	$ 186.74	$ -	$ 186.74	$ -
FNAL	x		$ 9.04	$ 32.55	$ 60.27	$ 11.98	$ 113.84	$ -	$ 113.84	$ -
HANF	x	x	$ 265.00	$ 1,659.02	$ 2,078.54	$ 296.76	$ 4,299.33	$ -	$ 452.69	$ 3,846.63
INEL	x	x	$ 61.65	$ 100.23	$ 521.85	$ 116.48	$ 800.21	$ -	$ 187.95	$ 612.26
ITRI	x		$ 3.80	$ 14.16	$ 17.29	$ 4.80	$ 40.05	$ -	$ 40.05	$ -
KAPL-S	x		$ 18.91	$ 52.88	$ 144.91	$ 13.28	$ 229.98	$ -	$ 229.98	$ -
KCP	x		$ 1.76	$ 2.46	$ 1.63	$ 4.80	$ 10.65	$ -	$ 10.65	$ -
LANL	x	x	$ 95.10	$ 162.36	$ 765.61	$ 189.55	$ 1,212.61	$ -	$ 272.03	$ 940.58
LBL	x		$ 6.87	$ 25.12	$ 42.67	$ 11.87	$ 86.53	$ -	$ 86.53	$ -
LLNL	x	x	$ 31.79	$ 54.55	$ 201.58	$ 70.17	$ 358.08	$ -	$ 134.04	$ 224.05
MOUND	x		$ 26.03	$ 74.62	$ 204.21	$ 17.14	$ 322.00	$ -	$ 322.00	$ -
NRF	x		$ 17.38	$ 47.67	$ 132.29	$ 10.38	$ 207.71	$ -	$ 207.71	$ -
ORR	x	x	$ 116.41	$ 376.52	$ 950.37	$ 100.53	$ 1,543.83	$ -	$ 711.28	$ 832.56
PAD	x	x	$ 47.28	$ 134.21	$ 387.71	$ 62.70	$ 631.91	$ -	$ 285.71	$ 346.19
PANT	x	x	$ 58.51	$ 97.75	$ 433.70	$ 105.27	$ 695.23	$ -	$ 203.38	$ 491.85
PORTS		x	$ 35.20	$ 149.04	$ 282.77	$ 66.73	$ 533.75	$ -	$ -	$ 533.75
PIN	x		$ 1.97	$ 3.73	$ 3.26	$ 4.80	$ 13.77	$ -	$ 13.77	$ -
PPPL	x		$ 2.97	$ 5.43	$ 11.92	$ 10.81	$ 31.13	$ -	$ 31.13	$ -
RFP	x	x	$ 60.60	$ 96.41	$ 453.10	$ 96.46	$ 706.58	$ -	$ 189.65	$ 516.93
RMI	x		$ 26.92	$ 75.60	$ 212.07	$ 19.81	$ 334.39	$ -	$ 334.39	$ -
SLAC	x		$ 8.55	$ 30.17	$ 56.45	$ 10.88	$ 106.05	$ -	$ 106.05	$ -
SNLA	x		$ 5.95	$ 22.57	$ 34.70	$ 4.82	$ 68.04	$ -	$ 68.04	$ -
SNLL	x		$ 4.25	$ 13.12	$ 21.62	$ 10.81	$ 49.80	$ -	$ 49.80	$ -
SRS	x	x	$ 321.76	$ 1,969.06	$ 3,052.11	$ 209.76	$ 5,552.69	$ 626.00	$ 904.19	$ 4,022.51
	TOTAL		$ 1,275.85	$ 5,333.03	$ 10,418.86	$ 1,487.67	$ 18,515.41	$ 626.00	$ 5,522.11	$ 12,367.30
						Transportation	$ 62.92			
						TOTAL COST	$ 18,578.34			

Table A-8. Nonalpha LLW Case #3 - FTE Summary

Treatment Scenario - Minimum Treatment

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
AMES	x		13	13	28	19	74	74	0
ANLE	x		55	112	320	23	510	510	0
ANLW	x		128	217	917	67	1,330	1,329	0
BAPL	x		95	162	500	39	796	796	0
FNAL	x		55	121	368	48	592	592	0
HANF	x	x	1,591	7,026	10,351	1,187	20,155	2,516	17,639
INEL	x	x	371	387	2,659	466	3,883	853	3,029
ITRI	x		23	52	105	19	200	199	0
KAPL-S	x		114	201	703	53	1,071	1,071	0
KCP	x		11	9	10	19	49	49	0
LANL	x	x	572	638	3,947	758	5,915	1,311	4,603
LBL	x		42	93	272	47	454	455	0
LLNL	x	x	192	203	1,289	281	1,965	746	1,218
MOUND	x		157	282	1,059	69	1,567	1,567	0
NRF	x		105	179	628	42	954	954	0
ORR	x	x	699	1,528	6,021	402	8,650	3,951	4,699
PAD	x	x	284	518	2,256	251	3,309	1,388	1,922
PANT	x	x	352	381	2,511	421	3,665	1,121	2,544
PORTS		x	211	599	1,828	267	2,905	0	2,905
PIN	x		13	13	20	19	65	65	0
PPPL	x		19	20	78	43	160	160	0
RFP	x	x	365	369	2,493	386	3,613	968	2,643
RMI	x		162	286	1,152	79	1,679	1,679	0
SLAC	x		52	112	337	44	544	544	0
SNLA	x		37	84	206	19	346	346	0
SNLL	x		26	48	137	43	254	254	0
SRS	x	x	1,932	8,315	12,232	839	23,318	4,739	18,577
	TOTAL		7,674	21,968	52,426	5,950	88,019	28,238	59,780
						TOTAL FTE	88,019		

Table A-9. Nonalpha LLW Case #4 - PLCC Summary

Treatment Scenario - Minimum Treatment

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
AMES	x		$ 2.12	$ 3.73	$ 4.55	$ 4.80	$ 15.19	$ -	$ 15.19	$ -
ANLE	x		$ 9.05	$ 30.08	$ 60.96	$ 5.74	$ 105.83	$ -	$ 105.83	$ -
ANLW	x		$ 21.28	$ 57.02	$ 164.37	$ 16.79	$ 259.46	$ -	$ 259.46	$ -
BAPL	x		$ 15.71	$ 42.96	$ 118.32	$ 9.76	$ 186.74	$ -	$ 186.74	$ -
FNAL	x		$ 9.04	$ 32.55	$ 60.27	$ 11.98	$ 113.84	$ -	$ 113.84	$ -
HANF	x	x	$ 263.65	$ 1,659.02	$ 2,067.54	$ 297.08	$ 4,287.30	$ -	$ 452.69	$ 3,834.60
INEL	x	x	$ 55.30	$ 94.81	$ 491.12	$ 105.45	$ 746.68	$ -	$ 187.95	$ 558.73
ITRI	x		$ 3.80	$ 14.16	$ 17.29	$ 4.80	$ 40.05	$ -	$ 40.05	$ -
KAPL-S	x		$ 18.91	$ 52.88	$ 144.91	$ 13.28	$ 229.98	$ -	$ 229.98	$ -
KCP	x		$ 1.76	$ 2.46	$ 1.63	$ 4.80	$ 10.65	$ -	$ 10.65	$ -
LANL	x	x	$ 120.84	$ 191.24	$ 993.84	$ 189.55	$ 1,495.47	$ -	$ 272.03	$ 1,223.43
LBL	x		$ 6.87	$ 25.12	$ 42.67	$ 11.87	$ 86.53	$ -	$ 86.53	$ -
LLNL	x		$ 13.24	$ 44.66	$ 95.49	$ 10.95	$ 164.34	$ -	$ 164.34	$ -
MOUND	x		$ 26.03	$ 74.62	$ 204.21	$ 17.14	$ 322.00	$ -	$ 322.00	$ -
NRF	x		$ 17.38	$ 47.67	$ 132.29	$ 10.38	$ 207.71	$ -	$ 207.71	$ -
NTS		x	$ 14.47	$ 17.77	$ 217.31	$ 18.33	$ 267.87	$ -	$ -	$ 267.87
ORR	x	x	$ 161.59	$ 464.80	$ 1,339.07	$ 100.53	$ 2,066.00	$ -	$ 711.28	$ 1,354.72
PAD	x		$ 22.65	$ 61.79	$ 181.87	$ 20.73	$ 287.04	$ -	$ 287.04	$ -
PANT	x		$ 25.61	$ 77.01	$ 199.85	$ 30.15	$ 332.63	$ -	$ 332.63	$ -
PIN	x		$ 1.97	$ 3.73	$ 3.26	$ 4.80	$ 13.77	$ -	$ 13.77	$ -
PPPL	x		$ 2.97	$ 5.43	$ 11.92	$ 10.81	$ 31.13	$ -	$ 31.13	$ -
RFP	x		$ 18.47	$ 53.62	$ 140.80	$ 14.94	$ 227.83	$ -	$ 227.83	$ -
RMI	x		$ 26.92	$ 75.60	$ 212.07	$ 19.81	$ 334.39	$ -	$ 334.39	$ -
SLAC	x		$ 8.55	$ 30.17	$ 56.45	$ 10.88	$ 106.05	$ -	$ 106.05	$ -
SNLA	x		$ 5.95	$ 22.57	$ 34.70	$ 4.82	$ 68.04	$ -	$ 68.04	$ -
SNLL	x		$ 4.25	$ 13.12	$ 21.62	$ 10.81	$ 49.80	$ -	$ 49.80	$ -
SRS	x	x	$ 322.02	$ 1,969.06	$ 3,063.89	$ 209.76	$ 5,564.73	$ 626.00	$ 904.19	$ 4,034.55
	TOTAL		$ 1,200.40	$ 5,167.66	$ 10,082.31	$ 1,170.72	$ 17,621.08	$ 626.00	$ 5,721.18	$ 11,273.90
						Transportation	$ 151.92			
						TOTAL COST	$ 17,773.00			

Table A-10. Nonalpha LLW Case #4 - FTE Summary

Treatment Scenario - Minimum Treatment

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
AMES	x		13	13	28	19	74	74	0
ANLE	x		55	112	320	23	510	510	0
ANLW	x		128	217	917	67	1,329	1,329	0
BAPL	x		95	162	500	39	796	796	0
FNAL	x		55	121	368	48	592	592	0
HANF	x	x	1,583	7,026	10,276	1,188	20,073	2,516	17,557
INEL	x	x	332	365	2,529	422	3,649	853	2,795
ITRI	x		24	52	105	19	199	199	0
KAPL-S	x		114	201	703	53	1,071	1,071	0
KCP	x		11	9	10	19	49	49	0
LANL	x	x	726	759	5,142	758	7,385	1,311	6,074
LBL	x		42	93	272	47	455	455	0
LLNL	x		80	166	612	44	902	902	0
MOUND	x		157	282	1,059	69	1,567	1,567	0
NRF	x		105	179	628	42	954	954	0
NTS		x	87	67	1,159	73	1,386	0	1,386
ORR	x	x	970	1,901	8,545	402	11,818	3,951	7,867
PAD	x		137	232	942	83	1,393	1,393	0
PANT	x		154	297	1,045	121	1,617	1,617	0
PIN	x		13	13	20	19	65	65	0
PPPL	x		19	20	78	43	160	160	0
RFP	x		112	201	706	60	1,078	1,078	0
RMI	x		162	286	1,152	79	1,679	1,679	0
SLAC	x		52	112	337	44	544	544	0
SNLA	x		36	84	206	19	346	346	0
SNLL	x		26	48	137	43	254	254	0
SRS	x	x	1,933	8,315	12,298	839	23,384	4,739	18,645
	TOTAL		7,220	21,333	50,093	4,683	83,329	29,005	54,324
						TOTAL FTE	83,329		

Table A-11. Nonalpha LLW Case #6 - PLCC Summary

Treatment Scenario - Minimum Treatment

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
AMES	x		$ 2.12	$ 3.73	$ 4.55	$ 4.80	$ 15.19	$ -	$ 15.19	$ -
ANLE	x		$ 9.05	$ 30.08	$ 60.96	$ 5.74	$ 105.83	$ -	$ 105.83	$ -
ANLW	x		$ 21.28	$ 57.02	$ 164.37	$ 16.79	$ 259.46	$ -	$ 259.46	$ -
BAPL	x		$ 15.71	$ 42.96	$ 118.32	$ 9.76	$ 186.74	$ -	$ 186.74	$ -
FNAL	x		$ 9.04	$ 32.55	$ 60.27	$ 11.98	$ 113.84	$ -	$ 113.84	$ -
HANF	x		$ 52.34	$ 172.00	$ 419.02	$ 38.33	$ 681.69	$ -	$ 681.69	$ -
INEL	x		$ 18.65	$ 52.00	$ 142.79	$ 12.79	$ 226.23	$ -	$ 226.23	$ -
ITRI	x		$ 3.80	$ 14.16	$ 17.29	$ 4.80	$ 40.05	$ -	$ 40.05	$ -
KAPL-S	x		$ 18.91	$ 52.88	$ 144.91	$ 13.28	$ 229.98	$ -	$ 229.98	$ -
KCP	x		$ 1.76	$ 2.46	$ 1.63	$ 4.80	$ 10.65	$ -	$ 10.65	$ -
LANL	x		$ 22.64	$ 64.80	$ 175.91	$ 23.84	$ 287.19	$ -	$ 287.19	$ -
LBL	x		$ 6.87	$ 25.12	$ 42.67	$ 11.87	$ 86.53	$ -	$ 86.53	$ -
LLNL	x		$ 13.24	$ 44.66	$ 95.49	$ 10.95	$ 164.34	$ -	$ 164.34	$ -
MOUND	x		$ 26.03	$ 74.62	$ 204.21	$ 17.14	$ 322.00	$ -	$ 322.00	$ -
NRF	x		$ 17.38	$ 47.67	$ 132.29	$ 10.38	$ 207.71	$ -	$ 207.71	$ -
NTS		x	$ 215.20	$ 339.89	$ 2,175.55	$ 166.48	$ 2,897.12	$ -	$ -	$ 2,897.12
ORR	x		$ 77.67	$ 250.05	$ 629.83	$ 43.67	$ 1,001.22	$ -	$ 1,001.22	$ -
PAD	x		$ 22.65	$ 61.79	$ 181.87	$ 20.73	$ 287.04	$ -	$ 287.04	$ -
PANT	x		$ 25.61	$ 77.01	$ 199.85	$ 30.15	$ 332.63	$ -	$ 332.63	$ -
PIN	x		$ 1.97	$ 3.73	$ 3.26	$ 4.80	$ 13.77	$ -	$ 13.77	$ -
PPPL	x		$ 2.97	$ 5.43	$ 11.92	$ 10.81	$ 31.13	$ -	$ 31.13	$ -
RFP	x		$ 18.47	$ 53.62	$ 140.80	$ 14.94	$ 227.83	$ -	$ 227.83	$ -
RMI	x		$ 26.92	$ 75.60	$ 212.07	$ 19.81	$ 334.39	$ -	$ 334.39	$ -
SLAC	x		$ 8.55	$ 30.17	$ 56.45	$ 10.88	$ 106.05	$ -	$ 106.05	$ -
SNLA	x		$ 5.95	$ 22.57	$ 34.70	$ 4.82	$ 68.04	$ -	$ 68.04	$ -
SNLL	x		$ 4.25	$ 13.12	$ 21.62	$ 10.81	$ 49.80	$ -	$ 49.80	$ -
SRS	x	x	$ 438.93	$ 2,681.59	$ 3,925.62	$ 209.76	$ 7,255.90	$ 626.00	$ 904.19	$ 5,725.72
	TOTAL		$ 1,087.97	$ 4,331.30	$ 9,378.26	$ 744.87	$ 15,542.39	$ 626.00	$ 6,293.55	$ 8,622.84
						Transportation	$ 550.27			
						TOTAL COST	$ 16,092.66			

Table A-12. Nonalpha LLW Case #6 - FTE Summary

Treatment Scenario - Minimum Treatment

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
AMES	x		13	13	28	19	74	74	0
ANLE	x		55	112	320	23	510	510	0
ANLW	x		128	217	917	67	1,329	1,329	0
BAPL	x		95	162	500	39	796	796	0
FNAL	x		55	121	368	48	592	592	0
HANF	x		315	689	2,316	153	3,473	3,473	0
INEL	x		113	197	690	51	1,051	1,051	0
ITRI	x		24	52	105	19	199	199	0
KAPL-S	x		114	201	703	53	1,071	1,071	0
KCP	x		11	9	10	19	49	49	0
LANL	x		137	248	895	95	1,375	1,375	0
LBL	x		42	93	272	47	455	455	0
LLNL	x		80	166	612	44	902	902	0
MOUND	x		157	282	1,059	69	1,567	1,567	0
NRF	x		105	179	628	42	954	954	0
NTS		x	1,291	1,451	11,493	666	14,902	0	14,902
ORR	x		467	1,004	3,509	175	5,155	5,155	0
PAD	x		137	232	942	83	1,393	1,393	0
PANT	x		154	297	1,045	121	1,617	1,617	0
PIN	x		13	13	20	19	65	65	0
PPPL	x		19	20	78	43	160	160	0
RFP	x		112	201	706	60	1,078	1,078	0
RMI	x		162	286	1,152	79	1,679	1,679	0
SLAC	x		52	112	337	44	544	544	0
SNLA	x		36	84	206	19	346	346	0
SNLL	x		26	48	137	43	254	254	0
SRS	x	x	2,634	11,380	16,511	839	31,364	4,739	26,625
	TOTAL		6,545	17,870	45,560	2,979	72,954	31,428	41,526
						TOTAL FTE	72,954		

Table A-13. Nonalpha LLW Case #8 - PLCC Summary

Treatment Scenario - Minimum Treatment

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
AMES	x		$ 2.12	$ 3.73	$ 4.55	$ 4.80	$ 15.19	$ -	$ 15.19	$ -
ANLE	x		$ 9.05	$ 30.08	$ 60.96	$ 5.74	$ 105.83	$ -	$ 105.83	$ -
ANLW	x		$ 21.28	$ 57.02	$ 164.37	$ 16.79	$ 259.46	$ -	$ 259.46	$ -
BAPL	x		$ 15.71	$ 42.96	$ 118.32	$ 9.76	$ 186.74	$ -	$ 186.74	$ -
FNAL	x		$ 9.04	$ 32.55	$ 60.27	$ 11.98	$ 113.84	$ -	$ 113.84	$ -
HANF	x		$ 52.34	$ 172.00	$ 419.02	$ 38.33	$ 681.69	$ -	$ 681.69	$ -
INEL	x		$ 18.65	$ 52.00	$ 142.79	$ 12.79	$ 226.23	$ -	$ 226.23	$ -
ITRI	x		$ 3.80	$ 14.16	$ 17.29	$ 4.80	$ 40.05	$ -	$ 40.05	$ -
KAPL-S	x		$ 18.91	$ 52.88	$ 144.91	$ 13.28	$ 229.98	$ -	$ 229.98	$ -
KCP	x		$ 1.76	$ 2.46	$ 1.63	$ 4.80	$ 10.65	$ -	$ 10.65	$ -
LANL	x		$ 22.64	$ 64.80	$ 175.91	$ 23.84	$ 287.19	$ -	$ 287.19	$ -
LBL	x		$ 6.87	$ 25.12	$ 42.67	$ 11.87	$ 86.53	$ -	$ 86.53	$ -
LLNL	x		$ 13.24	$ 44.66	$ 95.49	$ 10.95	$ 164.34	$ -	$ 164.34	$ -
MOUND	x		$ 26.03	$ 74.62	$ 204.21	$ 17.14	$ 322.00	$ -	$ 322.00	$ -
NRF	x		$ 17.38	$ 47.67	$ 132.29	$ 10.38	$ 207.71	$ -	$ 207.71	$ -
NTS		x	$ 371.10	$ 648.68	$ 3,439.79	$ 166.48	$ 4,626.05	$ -	$ -	$ 4,626.05
ORR	x		$ 77.67	$ 250.05	$ 629.83	$ 43.67	$ 1,001.22	$ -	$ 1,001.22	$ -
PAD	x		$ 22.65	$ 61.79	$ 181.87	$ 20.73	$ 287.04	$ -	$ 287.04	$ -
PANT	x		$ 25.61	$ 77.01	$ 199.85	$ 30.15	$ 332.63	$ -	$ 332.63	$ -
PIN	x		$ 1.97	$ 3.73	$ 3.26	$ 4.80	$ 13.77	$ -	$ 13.77	$ -
PPPL	x		$ 2.97	$ 5.43	$ 11.92	$ 10.81	$ 31.13	$ -	$ 31.13	$ -
RFP	x		$ 18.47	$ 53.62	$ 140.80	$ 14.94	$ 227.83	$ -	$ 227.83	$ -
RMI	x		$ 26.92	$ 75.60	$ 212.07	$ 19.81	$ 334.39	$ -	$ 334.39	$ -
SLAC	x		$ 8.55	$ 30.17	$ 56.45	$ 10.88	$ 106.05	$ -	$ 106.05	$ -
SNLA	x		$ 5.95	$ 22.57	$ 34.70	$ 4.82	$ 68.04	$ -	$ 68.04	$ -
SNLL	x		$ 4.25	$ 13.12	$ 21.62	$ 10.81	$ 49.80	$ -	$ 49.80	$ -
SRS	x		$ 78.77	$ 320.79	$ 1,248.16	$ 44.20	$ 1,691.93	$ 626.00	$ 1,065.93	$ -
	TOTAL		$ 883.71	$ 2,279.28	$ 7,965.04	$ 579.32	$ 11,707.35	$ 626.00	$ 6,455.29	$ 4,626.05
						Transportation	$ -			
						TOTAL COST	$ 11,707.35			

Table A-14. Nonalpha LLW Case #8 - FTE Summary

Treatment Scenario - Minimum Treatment

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
AMES	x		13	13	28	19	74	74	0
ANLE	x		55	112	320	23	510	510	0
ANLW	x		128	217	917	67	1,329	1,329	0
BAPL	x		95	162	500	39	796	796	0
FNAL	x		55	121	368	48	592	592	0
HANF	x		315	689	2,316	153	3,473	3,473	0
INEL	x		113	197	690	51	1,051	1,051	0
ITRI	x		24	52	105	19	199	199	0
KAPL-S	x		114	201	703	53	1,071	1,071	0
KCP	x		11	9	10	19	49	49	0
LANL	x		137	248	895	95	1,375	1,375	0
LBL	x		42	93	272	47	455	455	0
LLNL	x		80	166	612	44	902	902	0
MOUND	x		157	282	1,059	69	1,567	1,567	0
NRF	x		105	179	628	42	954	954	0
NTS		x	2,227	2,901	17,803	666	23,597	0	23,597
ORR	x		467	1,004	3,509	175	5,155	5,155	0
PAD	x		137	232	942	83	1,393	1,393	0
PANT	x		154	297	1,045	121	1,617	1,617	0
PIN	x		13	13	20	19	65	65	0
PPPL	x		19	20	78	43	160	160	0
RFP	x		112	201	706	60	1,078	1,078	0
RMI	x		162	286	1,152	79	1,679	1,679	0
SLAC	x		52	112	337	44	544	544	0
SNLA	x		36	84	206	19	346	346	0
SNLL	x		26	48	137	43	254	254	0
SRS	x		473	1,281	3,607	177	5,538	5,538	0
	TOTAL		5,320	9,221	38,966	2,317	55,824	32,227	23,597
						TOTAL FTE	55,824		

Table A-15. Nonalpha LLW Case #9 - PLCC Summary

Treatment Scenario - Volume Reduction at Regional Treatment Site

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
AMES	x		$ 2.12	$ 3.73	$ 4.55	$ 4.80	$ 15.19	$ -	$ 15.19	$ -
ANLE	x		$ 9.05	$ 30.08	$ 60.96	$ 5.74	$ 105.83	$ -	$ 105.83	$ -
ANLW	x		$ 19.82	$ 51.45	$ 152.53	$ 16.78	$ 240.59	$ -	$ 240.59	$ -
BAPL	x		$ 14.31	$ 38.75	$ 106.65	$ 6.12	$ 165.84	$ -	$ 165.84	$ -
FEMP	x		$ 49.63	$ 81.11	$ 162.90	$ 18.29	$ 311.94	$ -	$ 311.94	$ -
FNAL	x		$ 6.07	$ 19.90	$ 36.43	$ 11.95	$ 74.35	$ -	$ 74.35	$ -
HANF	x	x	$ 319.09	$ 1,774.21	$ 2,427.90	$ 266.72	$ 4,787.91	$ -	$ 1,234.73	$ 3,553.18
INEL	x	x	$ 92.31	$ 184.36	$ 891.18	$ 124.62	$ 1,292.48	$ -	$ 872.41	$ 420.07
ITRI	x		$ 3.76	$ 14.16	$ 16.93	$ 4.80	$ 39.65	$ -	$ 39.65	$ -
KAPL-S	x		$ 14.89	$ 40.25	$ 111.51	$ 5.92	$ 172.56	$ -	$ 172.56	$ -
KCP	x		$ 1.76	$ 2.46	$ 1.63	$ 4.80	$ 10.65	$ -	$ 10.65	$ -
LANL	x	x	$ 139.96	$ 243.78	$ 888.41	$ 141.24	$ 1,413.39	$ -	$ 811.66	$ 601.73
LBL	x		$ 5.69	$ 19.99	$ 33.25	$ 11.87	$ 70.80	$ -	$ 70.80	$ -
LLNL	x	x	$ 52.80	$ 152.26	$ 321.57	$ 37.67	$ 564.29	$ -	$ 253.34	$ 310.95
MOUND	x		$ 26.00	$ 74.55	$ 204.01	$ 17.08	$ 321.63	$ -	$ 321.63	$ -
ORR	x	x	$ 278.22	$ 716.04	$ 3,019.89	$ 93.45	$ 4,107.60	$ -	$ 3,773.19	$ 334.41
PAD	x	x	$ 78.58	$ 182.62	$ 470.31	$ 65.10	$ 796.61	$ -	$ 485.07	$ 311.54
PANT	x	x	$ 109.86	$ 199.07	$ 815.08	$ 105.69	$ 1,229.70	$ -	$ 1,010.95	$ 218.58
PORTS	x	x	$ 130.15	$ 307.25	$ 873.17	$ 125.48	$ 1,436.05	$ -	$ 913.78	$ 522.27
PIN	x		$ 1.80	$ 2.52	$ 1.99	$ 1.94	$ 8.25	$ -	$ 8.25	$ -
PPPL	x		$ 1.73	$ 2.46	$ 1.32	$ 4.80	$ 10.31	$ -	$ 10.31	$ -
RFP	x	x	$ 47.95	$ 84.63	$ 341.04	$ 74.42	$ 548.04	$ -	$ 193.60	$ 354.44
RMI	x		$ 25.79	$ 74.12	$ 202.18	$ 19.69	$ 321.78	$ -	$ 321.78	$ -
SLAC	x		$ 8.55	$ 30.17	$ 56.45	$ 10.88	$ 106.05	$ -	$ 106.05	$ -
SNLA	x		$ 5.54	$ 21.24	$ 31.29	$ 4.82	$ 62.88	$ -	$ 62.88	$ -
SNLL	x		$ 2.99	$ 10.16	$ 10.87	$ 4.80	$ 28.81	$ -	$ 28.81	$ -
SRS	x	x	$ 326.99	$ 1,758.25	$ 2,994.65	$ 225.23	$ 5,305.12	$ 626.00	$ 1,267.24	$ 3,411.88
	TOTAL		$ 1,775.40	$ 6,119.57	$ 14,238.66	$ 1,414.67	$ 23,548.30	$ 626.00	$ 12,883.08	$ 10,039.05
						Transportation	$ 64.37			
						TOTAL COST	$ 23,612.67			

Table A-16. Alpha LLW Case #9 - PLCC Summary

Treatment Scenario - Volume Reduction at Regional Treatment Site

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
RFP	X		$ 51.87	$ 175.77	$ 247.22	$ 21.54	$ 496.40	$ -	$ 496.40	$ -
	TOTAL		$ 51.87	$ 175.77	$ 247.22	$ 21.54	$ 496.40	$ -	$ 496.40	$ -
						Transportation	$ -			
						TOTAL COST	$ 496.40			

Table A-17. Nonalpha LLW Case #9 - FTE Summary

Treatment Scenario - Volume Reduction at Regional Treatment Site

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
AMES	x		14	13	28	19	74	74	0
ANLE	x		55	112	320	23	510	510	0
ANLW	x		120	196	846	67	1,229	1,229	0
BAPL	x		87	144	419	24	674	674	0
FEMP	x		294	294	1,089	73	1,750	1,751	0
FNAL	x		37	75	217	48	377	378	0
HANF	x	x	1,916	7,457	12,933	1,067	23,373	6,889	16,484
INEL	x	x	551	707	5,255	498	7,011	4,776	2,235
ITRI	x		24	52	102	19	197	197	0
KAPL-S	x		90	149	477	24	740	740	0
KCP	x		11	9	10	19	49	49	0
LANL	x	x	837	927	5,011	565	7,340	4,348	2,992
LBL	x		35	75	213	47	370	371	0
LLNL	x	x	315	591	1,889	151	2,946	1,409	1,537
MOUND	x		157	282	1,058	68	1,565	1,565	0
ORR	x	x	1,671	3,033	18,039	374	23,117	21,260	1,857
PAD	x	x	471	692	2,820	260	4,243	2,512	1,731
PANT	x	x	660	776	4,996	423	6,855	5,670	1,184
PORTS	x	x	777	1,197	5,507	502	7,983	5,087	2,897
PIN	x		12	9	12	8	41	40	0
PPPL	x		11	9	8	19	47	47	0
RFP	x	x	289	322	2,087	298	2,996	991	2,004
RMI	x		156	280	1,085	79	1,600	1,600	0
SLAC	x		52	112	337	44	545	544	0
SNLA	x		34	79	185	19	317	317	0
SNLL	x		19	37	66	19	141	141	0
SRS	x	x	1,959	7,371	12,247	901	22,478	6,758	15,720
	TOTAL		10,651	25,000	77,256	5,658	118,565	69,925	48,640
						TOTAL FTE	118,565		

Table A-18. Alpha LLW Case #9 - FTE Summary

Treatment Scenario - Volume Reduction at Regional Treatment Site

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
RFP	x		309	668	1,590	86	2,653	2,654	0
TOTAL			309	668	1,590	86	2,653	2,654	0
						TOTAL FTE	2,653		

Table A-19. Nonalpha LLW Case #10 - PLCC Summary

Treatment Scenario - Volume Reduction at Regional Treatment Site

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
AMES	x		$ 2.12	$ 3.73	$ 4.55	$ 4.80	$ 15.19	$ -	$ 15.19	$ -
ANLE	x		$ 9.05	$ 30.08	$ 60.96	$ 5.74	$ 105.83	$ -	$ 105.83	$ -
ANLW	x		$ 19.82	$ 51.45	$ 152.53	$ 16.78	$ 240.59	$ -	$ 240.59	$ -
BAPL	x		$ 14.31	$ 38.75	$ 106.65	$ 6.12	$ 165.84	$ -	$ 165.84	$ -
FEMP	x		$ 49.63	$ 81.11	$ 162.90	$ 18.29	$ 311.94		$ 311.94	$ -
FNAL	x		$ 6.07	$ 19.90	$ 36.43	$ 11.95	$ 74.35	$ -	$ 74.35	$ -
HANF	x	x	$ 319.09	$ 1,775.66	$ 2,427.53	$ 266.72	$ 4,789.00	$ -	$ 1,236.22	$ 3,552.78
INEL	x	x	$ 91.89	$ 183.46	$ 882.80	$ 122.80	$ 1,280.94	$ -	$ 872.41	$ 408.53
ITRI	x		$ 3.76	$ 14.16	$ 16.93	$ 4.80	$ 39.65	$ -	$ 39.65	$ -
KAPL-S	x		$ 14.89	$ 40.25	$ 111.51	$ 5.92	$ 172.56	$ -	$ 172.56	$ -
KCP	x		$ 1.76	$ 2.46	$ 1.63	$ 4.80	$ 10.65	$ -	$ 10.65	$ -
LANL	x	x	$ 147.18	$ 254.22	$ 946.29	$ 164.94	$ 1,512.63	$ -	$ 811.66	$ 700.98
LBL	x		$ 5.69	$ 19.99	$ 33.25	$ 11.87	$ 70.80	$ -	$ 70.80	$ -
LLNL	x		$ 24.69	$ 61.40	$ 148.82	$ 19.75	$ 254.67	$ -	$ 254.67	$ -
MOUND	x		$ 26.00	$ 74.55	$ 204.01	$ 17.08	$ 321.63	$ -	$ 321.63	$ -
NTS		x	$ 12.98	$ 14.69	$ 172.75	$ 17.92	$ 218.34	$ -	$ -	$ 218.34
ORR	x	x	$ 313.40	$ 837.61	$ 3,309.26	$ 120.13	$ 4,580.40	$ -	$ 3,773.69	$ 806.72
PAD	x		$ 56.08	$ 118.22	$ 281.87	$ 28.91	$ 485.07	$ -	$ 485.07	$ -
PANT	x		$ 89.65	$ 178.22	$ 696.61	$ 46.46	$ 1,010.95	$ -	$ 1,010.95	$ -
PORTS	x		$ 93.98	$ 186.56	$ 574.49	$ 58.75	$ 913.78	$ -	$ 913.78	$ -
PIN	x		$ 1.80	$ 2.52	$ 1.99	$ 1.94	$ 8.25	$ -	$ 8.25	$ -
PPPL	x		$ 1.73	$ 2.46	$ 1.32	$ 4.80	$ 10.31	$ -	$ 10.31	$ -
RFP	x		$ 15.41	$ 48.93	$ 114.07	$ 15.19	$ 193.60	$ -	$ 193.60	$ -
RMI	x		$ 25.79	$ 74.12	$ 202.18	$ 19.69	$ 321.78	$ -	$ 321.78	$ -
SLAC	x		$ 8.55	$ 30.17	$ 56.45	$ 10.88	$ 106.05	$ -	$ 106.05	$ -
SNLA	x		$ 5.54	$ 21.24	$ 31.29	$ 4.82	$ 62.88	$ -	$ 62.88	$ -
SNLL	x		$ 2.99	$ 10.16	$ 10.87	$ 4.80	$ 28.81	$ -	$ 28.81	$ -
SRS	x	x	$ 326.75	$ 1,762.82	$ 2,986.74	$ 225.23	$ 5,301.54	$ 626.00	$ 1,272.36	$ 3,403.18
TOTAL			$ 1,690.60	$ 5,938.89	$ 13,736.69	$ 1,241.86	$ 22,608.04	$ 626.00	$ 12,891.52	$ 9,090.52
						Transportation	$ 160.23			
						TOTAL COST	$ 22,768.26			

Table A-20. Alpha LLW Case #10 - PLCC Summary

Treatment Scenario - Volume Reduction at Regional Treatment Site

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
RFP	X		$ 51.87	$ 175.77	$ 247.22	$ 21.54	$ 496.40	$ -	$ 496.40	$ -
	TOTAL		$ 51.87	$ 175.77	$ 247.22	$ 21.54	$ 496.40	$ -	$ 496.40	$ -
						Transportation	$ -			
						TOTAL COST	$ 496.40			

Table A-21. Nonalpha LLW Case #10 - FTE Summary

Treatment Scenario - Volume Reduction at Regional Treatment Site

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
AMES	x		13	13	28	19	74	74	0
ANLE	x		55	112	320	23	510	510	0
ANLW	x		120	196	846	67	1,229	1,229	0
BAPL	x		87	144	419	24	674	674	0
FEMP	x		294	294	1,089	73	1,751	1,751	0
FNAL	x		37	75	217	48	378	378	0
HANF	x	x	1,916	7,466	12,932	1,067	23,381	6,897	16,483
INEL	x	x	548	703	5,227	491	6,969	4,776	2,194
ITRI	x		23	52	102	19	197	197	0
KAPL-S	x		90	149	477	24	740	740	0
KCP	x		11	9	10	19	49	49	0
LANL	x	x	880	970	5,274	660	7,784	4,348	3,435
LBL	x		35	75	213	47	371	371	0
LLNL	x		147	227	965	79	1,417	1,417	0
MOUND	x		157	282	1,058	68	1,565	1,565	0
NTS		x	78	55	924	72	1,128	0	1,128
ORR	x	x	1,882	3,532	19,929	481	25,824	21,263	4,561
PAD	x		336	438	1,622	116	2,512	2,512	0
PANT	x		539	697	4,248	186	5,670	5,670	0
PORTS	x		560	716	3,576	235	5,087	5,087	0
PIN	x		11	9	12	8	40	40	0
PPPL	x		11	9	8	19	47	47	0
RFP	x		93	184	653	61	991	991	0
RMI	x		155	280	1,085	79	1,600	1,600	0
SLAC	x		52	112	337	44	544	544	0
SNLA	x		34	79	185	19	317	317	0
SNLL	x		19	37	66	19	141	141	0
SRS	x	x	1,958	7,392	12,210	901	22,460	6,782	15,678
	TOTAL		10,140	24,309	74,032	4,967	113,448	69,969	43,479
						TOTAL FTE	113,448		

Table A-22. Alpha LLW Case #10 - FTE Summary

Treatment Scenario - Volume Reduction at Regional Treatment Site

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
RFP	x		309	668	1,590	86	2,654	2,654	0
	TOTAL		309	668	1,590	86	2,654	2,654	0
						TOTAL FTE	2,654		

Table A-23. Nonalpha LLW Case #14 - PLCC Summary

Treatment Scenario - Volume Reduction at Regional Treatment Site

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
AMES	x		$ 2.12	$ 3.73	$ 4.55	$ 4.80	$ 15.19	$ -	$ 15.19	$ -
ANLE	x		$ 9.05	$ 30.08	$ 60.96	$ 5.74	$ 105.83	$ -	$ 105.83	$ -
ANLW	x		$ 19.82	$ 51.45	$ 152.53	$ 16.78	$ 240.59	$ -	$ 240.59	$ -
BAPL	x		$ 14.31	$ 38.75	$ 106.65	$ 6.12	$ 165.84	$ -	$ 165.84	$ -
FNAL	x		$ 6.07	$ 19.90	$ 36.43	$ 11.95	$ 74.35	$ -	$ 74.35	$ -
HANF	x		$ 117.17	$ 253.60	$ 846.86	$ 51.47	$ 1,269.10	$ -	$ 1,269.10	$ -
INEL	x		$ 67.89	$ 148.51	$ 600.64	$ 55.38	$ 872.41	$ -	$ 872.41	$ -
ITRI	x		$ 3.76	$ 14.16	$ 16.93	$ 4.80	$ 39.65	$ -	$ 39.65	$ -
KAPL-S	x		$ 14.89	$ 40.25	$ 111.51	$ 5.92	$ 172.56	$ -	$ 172.56	$ -
KCP	x		$ 1.76	$ 2.46	$ 1.63	$ 4.80	$ 10.65	$ -	$ 10.65	$ -
LANL	x		$ 153.06	$ 360.97	$ 1,133.11	$ 73.89	$ 1,721.03	$ -	$ 1,721.03	$ -
LBL	x		$ 5.69	$ 19.99	$ 33.25	$ 11.87	$ 70.80	$ -	$ 70.80	$ -
LLNL	x		$ 12.94	$ 44.50	$ 92.74	$ 10.81	$ 160.99	$ -	$ 160.99	$ -
MOUND	x		$ 26.00	$ 74.55	$ 204.01	$ 17.08	$ 321.63	$ -	$ 321.63	$ -
NTS		x	$ 396.79	$ 1,852.08	$ 3,457.64	$ 301.36	$ 6,007.87	$ -	$ -	$ 6,007.87
ORR	x		$ 272.71	$ 662.61	$ 2,859.85	$ 54.98	$ 3,850.15	$ -	$ 3,850.15	$ -
PAD	x		$ 21.74	$ 59.84	$ 174.05	$ 20.15	$ 275.78	$ -	$ 275.78	$ -
PANT	x		$ 18.30	$ 54.60	$ 139.00	$ 14.32	$ 226.22	$ -	$ 226.22	$ -
PORTS	x		$ 98.00	$ 204.44	$ 609.62	$ 60.44	$ 972.50	$ -	$ 972.50	$ -
PIN	x		$ 1.80	$ 2.52	$ 1.99	$ 1.94	$ 8.25	$ -	$ 8.25	$ -
PPPL	x		$ 1.73	$ 2.46	$ 1.32	$ 4.80	$ 10.31	$ -	$ 10.31	$ -
RFP	x		$ 15.41	$ 48.93	$ 114.07	$ 15.19	$ 193.60	$ -	$ 193.60	$ -
RMI	x		$ 25.79	$ 74.12	$ 202.18	$ 19.69	$ 321.78	$ -	$ 321.78	$ -
SLAC	x		$ 8.55	$ 30.17	$ 56.45	$ 10.88	$ 106.05	$ -	$ 106.05	$ -
SNLA	x		$ 5.54	$ 21.24	$ 31.29	$ 4.82	$ 62.88	$ -	$ 62.88	$ -
SNLL	x		$ 2.99	$ 10.16	$ 10.87	$ 4.80	$ 28.81	$ -	$ 28.81	$ -
SRS	x		$ 116.10	$ 298.84	$ 1,427.26	$ 56.17	$ 1,898.36	$ 626.00	$ 1,272.36	$ -
	TOTAL		$ 1,439.96	$ 4,424.91	$ 12,487.39	$ 850.93	$ 19,203.18	$ 626.00	$ 12,569.31	$ 6,007.87
						Transportation	$ -			
						TOTAL COST	$ 19,203.18			

Table A-24. Alpha LLW Case #14 - PLCC Summary

Treatment Scenario - Volume Reduction at Regional Treatment Site

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
RFP	x		$ 51.87	$ 175.77	$ 247.22	$ 21.54	$ 496.40	$ -	$ 496.40	$ -
	TOTAL		$ 51.87	$ 175.77	$ 247.22	$ 21.54	$ 496.40	$ -	$ 496.40	$ -
						Transportation	$ -			
						TOTAL COST	$ 496.40			

Table A-25. Nonalpha LLW Case #14 - FTE Summary

Treatment Scenario - Volume Reduction at Regional Treatment Site

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
AMES	x		13	13	28	19	74	74	0
ANLE	x		55	112	320	23	510	510	0
ANLW	x		120	196	846	67	1,229	1,229	0
BAPL	x		87	144	419	24	674	674	0
FNAL	x		37	75	217	48	378	378	0
HANF	x		702	1,003	5,175	206	7,086	7,086	0
INEL	x		404	569	3,581	222	4,776	4,776	0
ITRI	x		23	52	102	19	197	197	0
KAPL-S	x		90	149	477	24	740	740	0
KCP	x		11	9	10	19	49	49	0
LANL	x		915	1,414	6,847	296	9,472	9,472	0
LBL	x		35	75	213	47	371	371	0
LLNL	x		78	165	594	43	881	881	0
MOUND	x		157	282	1,058	68	1,565	1,565	0
NTS		x	2,381	7,949	17,322	1,205	28,856	0	28,856
ORR	x		1,633	2,824	17,048	220	21,725	21,725	0
PAD	x		131	225	889	81	1,325	1,325	0
PANT	x		111	204	628	57	999	999	0
PORTS	x		584	784	3,828	242	5,438	5,438	0
PIN	x		11	9	12	8	40	40	0
PPPL	x		11	9	8	19	47	47	0
RFP	x		93	184	653	61	991	991	0
RMI	x		155	280	1,085	79	1,600	1,600	0
SLAC	x		52	112	337	44	544	544	0
SNLA	x		34	79	185	19	317	317	0
SNLL	x		19	37	66	19	141	141	0
SRS	x		694	1,179	4,685	225	6,782	6,782	0
	TOTAL		8,637	18,135	66,631	3,404	96,806	67,950	28,856
						TOTAL FTE	96,806		

Table A-26. Alpha LLW Case #14 - FTE Summary

Treatment Scenario - Volume Reduction at Regional Treatment Site

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
RFP	X		309	668	1,590	86	2,654	2,654	0
	TOTAL		309	668	1,590	86	2,654	2,654	0
						TOTAL FTE	2,654		

Table A-27. Nonalpha LLW Case #17 - PLCC Summary

Treatment Scenario - Volume Reduction at Regional Treatment Site

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
AMES	x		$ 2.12	$ 3.73	$ 4.55	$ 4.80	$ 15.19	$ -	$ 15.19	$ -
ANLE	x		$ 9.05	$ 30.08	$ 60.96	$ 5.74	$ 105.83	$ -	$ 105.83	$ -
ANLW	x		$ 19.82	$ 51.45	$ 152.53	$ 16.78	$ 240.59	$ -	$ 240.59	$ -
BAPL	x		$ 14.31	$ 38.75	$ 106.65	$ 6.12	$ 165.84	$ -	$ 165.84	$ -
FNAL	x		$ 6.07	$ 19.90	$ 36.43	$ 11.95	$ 74.35	$ -	$ 74.35	$ -
HANF	x	x	$ 319.09	$ 1,774.21	$ 2,427.90	$ 266.72	$ 4,787.91	$ -	$ 1,234.73	$ 3,553.18
INEL	x	x	$ 92.31	$ 184.36	$ 891.18	$ 124.62	$ 1,292.48	$ -	$ 872.41	$ 420.07
ITRI	x		$ 3.76	$ 14.16	$ 16.93	$ 4.80	$ 39.65	$ -	$ 39.65	$ -
KAPL-S	x		$ 14.89	$ 40.25	$ 111.51	$ 5.92	$ 172.56	$ -	$ 172.56	$ -
KCP	x		$ 1.76	$ 2.46	$ 1.63	$ 4.80	$ 10.65	$ -	$ 10.65	$ -
LANL	x	x	$ 66.17	$ 109.12	$ 521.31	$ 107.08	$ 803.68	$ -	$ 254.29	$ 549.39
LBL	x		$ 5.69	$ 19.99	$ 33.25	$ 11.87	$ 70.80	$ -	$ 70.80	$ -
LLNL	x		$ 12.94	$ 44.50	$ 92.74	$ 10.81	$ 160.99	$ -	$ 160.99	$ -
MOUND	x		$ 26.00	$ 74.55	$ 204.01	$ 17.08	$ 321.63	$ -	$ 321.63	$ -
NTS	x	x	$ 170.70	$ 382.95	$ 1,412.73	$ 154.58	$ 2,120.96	$ -	$ 1,621.37	$ 499.59
ORR	x	x	$ 367.25	$ 974.31	$ 3,847.94	$ 141.43	$ 5,330.94	$ -	$ 4,528.39	$ 802.55
PAD	x		$ 21.74	$ 59.84	$ 174.05	$ 20.15	$ 275.78	$ -	$ 275.78	$ -
PANT	x		$ 18.30	$ 54.60	$ 139.00	$ 14.32	$ 226.22	$ -	$ 226.22	$ -
PIN	x		$ 1.80	$ 2.52	$ 1.99	$ 1.94	$ 8.25	$ -	$ 8.25	$ -
PPPL	x		$ 1.73	$ 2.46	$ 1.32	$ 4.80	$ 10.31	$ -	$ 10.31	$ -
RFP	x		$ 14.28	$ 45.55	$ 104.66	$ 12.26	$ 176.75	$ -	$ 176.75	$ -
RMI	x		$ 25.79	$ 74.12	$ 202.18	$ 19.69	$ 321.78	$ -	$ 321.78	$ -
SLAC	x		$ 8.55	$ 30.17	$ 56.45	$ 10.88	$ 106.05	$ -	$ 106.05	$ -
SNLA	x		$ 5.54	$ 21.24	$ 31.29	$ 4.82	$ 62.88	$ -	$ 62.88	$ -
SNLL	x		$ 2.99	$ 10.16	$ 10.87	$ 4.80	$ 28.81	$ -	$ 28.81	$ -
SRS	x	x	$ 326.78	$ 1,762.82	$ 2,986.96	$ 225.23	$ 5,301.79	$ 626.00	$ 1,272.36	$ 3,403.43
	TOTAL		$ 1,559.42	$ 5,828.25	$ 13,631.04	$ 1,213.96	$ 22,232.66	$ 626.00	$ 12,378.46	$ 9,228.21
						Transportation	$ -			
						TOTAL COST	$ 22,232.66			

Table A-28. Alpha LLW Case #17 - PLCC Summary

Treatment Scenario - Volume Reduction at Regional Treatment Site

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
NTS	x		$ 64.17	$ 186.85	$ 278.01	$ 25.62	$ 554.66	$ -	$ 554.66	$ -
	TOTAL		$ 64.17	$ 186.85	$ 278.01	$ 25.62	$ 554.66	$ -	$ 554.66	$ -
						Transportation	$ -			
						TOTAL COST	$ 554.66			

Table A-29. Nonalpha LLW Case #17 - FTE Summary

Treatment Scenario - Volume Reduction at Regional Treatment Site

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
AMES	x		13	13	28	19	74	74	0
ANLE	x		55	112	320	23	510	510	0
ANLW	x		120	196	846	67	1,229	1,229	0
BAPL	x		87	144	419	24	674	674	0
FNAL	x		37	75	217	48	378	378	0
HANF	x	x	1,916	7,457	12,933	1,067	23,373	6,888	16,485
INEL	x	x	550	707	5,255	498	7,011	4,776	2,235
ITRI	x		23	52	102	19	197	197	0
KAPL-S	x		90	149	477	24	740	740	0
KCP	x		11	9	10	19	49	49	0
LANL	x	x	398	418	2,708	428	3,953	1,182	2,770
LBL	x		35	75	213	47	371	371	0
LLNL	x		78	165	594	43	881	881	0
MOUND	x		157	282	1,058	68	1,565	1,565	0
NTS	x	x	1,021	1,504	8,524	618	11,667	9,132	2,536
ORR	x	x	2,201	4,134	23,212	566	30,113	25,579	4,534
PAD	x		131	225	889	81	1,325	1,325	0
PANT	x		111	204	628	57	999	999	0
PIN	x		11	9	12	8	40	40	0
PPPL	x		11	9	8	19	47	47	0
RFP	x		86	170	587	49	892	892	0
RMI	x		155	280	1,085	79	1,600	1,600	0
SLAC	x		52	112	337	44	544	544	0
SNLA	x		34	79	185	19	317	317	0
SNLL	x		19	37	66	19	141	141	0
SRS	x	x	1,958	7,392	12,211	901	22,461	6,782	15,679
	TOTAL		9,359	24,011	72,924	4,856	111,150	66,912	44,238
						TOTAL FTE	111,150		

Table A-30. Alpha LLW Case #17 - FTE Summary

Treatment Scenario - Volume Reduction at Regional Treatment Site

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
NTS	X		381	709	1,792	102	2,985	2,985	0
	TOTAL		381	709	1,792	102	2,985	2,985	0
						TOTAL FTE	2,985		

Table A-31. Nonalpha LLW Case #18 - PLCC Summary

Treatment Scenario - Volume Reduction at Regional Treatment Site

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
AMES	x		$ 2.12	$ 3.73	$ 4.55	$ 4.80	$ 15.19	$ -	$ 15.19	$ -
ANLE	x		$ 9.05	$ 30.08	$ 60.96	$ 5.74	$ 105.83	$ -	$ 105.83	$ -
ANLW	x		$ 19.82	$ 51.45	$ 152.53	$ 16.78	$ 240.59	$ -	$ 240.59	$ -
BAPL	x		$ 14.31	$ 38.75	$ 106.65	$ 6.12	$ 165.84	$ -	$ 165.84	$ -
FNAL	x		$ 6.07	$ 19.90	$ 36.43	$ 11.95	$ 74.35	$ -	$ 74.35	$ -
HANF	x	x	$ 329.57	$ 1,777.50	$ 2,446.15	$ 267.90	$ 4,821.12	$ -	$ 1,267.94	$ 3,553.18
INEL	x	x	$ 182.00	$ 382.27	$ 1,782.53	$ 143.48	$ 2,490.28	$ -	$ 2,070.21	$ 420.07
ITRI	x		$ 3.76	$ 14.16	$ 16.93	$ 4.80	$ 39.65	$ -	$ 39.65	$ -
KAPL-S	x		$ 14.89	$ 40.25	$ 111.51	$ 5.92	$ 172.56	$ -	$ 172.56	$ -
KCP	x		$ 1.76	$ 2.46	$ 1.63	$ 4.80	$ 10.65	$ -	$ 10.65	$ -
LANL	x	x	$ 70.33	$ 114.25	$ 553.37	$ 118.06	$ 856.02	$ -	$ 254.29	$ 601.73
LBL	x		$ 5.69	$ 19.99	$ 33.25	$ 11.87	$ 70.80	$ -	$ 70.80	$ -
LLNL	x	x	$ 41.07	$ 136.65	$ 265.49	$ 28.73	$ 471.94	$ -	$ 160.99	$ 310.95
MOUND	x		$ 26.00	$ 74.55	$ 204.01	$ 17.08	$ 321.63	$ -	$ 321.63	$ -
ORR	x	x	$ 333.60	$ 857.48	$ 3,571.21	$ 117.70	$ 4,879.99	$ -	$ 4,528.39	$ 351.61
PAD	x	x	$ 44.23	$ 124.25	$ 362.49	$ 56.35	$ 587.32	$ -	$ 275.78	$ 311.54
PANT	x	x	$ 38.51	$ 75.45	$ 257.47	$ 73.55	$ 444.97	$ -	$ 226.22	$ 218.75
PORTS		x	$ 34.96	$ 120.69	$ 287.62	$ 66.73	$ 509.99	$ -	$ -	$ 509.99
PIN	x		$ 1.80	$ 2.52	$ 1.99	$ 1.94	$ 8.25	$ -	$ 8.25	$ -
PPPL	x		$ 1.73	$ 2.46	$ 1.32	$ 4.80	$ 10.31	$ -	$ 10.31	$ -
RFP	x	x	$ 46.83	$ 81.24	$ 331.64	$ 71.49	$ 531.19	$ -	$ 176.75	$ 354.44
RMI	x		$ 25.79	$ 74.12	$ 202.18	$ 19.69	$ 321.78	$ -	$ 321.78	$ -
SLAC	x		$ 8.55	$ 30.17	$ 56.45	$ 10.88	$ 106.05	$ -	$ 106.05	$ -
SNLA	x		$ 5.54	$ 21.24	$ 31.29	$ 4.82	$ 62.88	$ -	$ 62.88	$ -
SNLL	x		$ 2.99	$ 10.16	$ 10.87	$ 4.80	$ 28.81	$ -	$ 28.81	$ -
SRS	x	x	$ 339.74	$ 1,916.83	$ 3,073.77	$ 232.98	$ 5,563.32	$ 626.00	$ 1,533.89	$ 3,403.43
	TOTAL		$ 1,610.70	$ 6,022.60	$ 13,964.30	$ 1,313.72	$ 22,911.32	$ 626.00	$ 12,249.63	$ 10,035.69
						Transportation	$ 397.74			
						TOTAL COST	$ 23,309.06			

Table A-32. Alpha LLW Case #18 - PLCC Summary

Treatment Scenario - Volume Reduction at Regional Treatment Site

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
INEL	x		$ 64.17	$ 186.85	$ 278.01	$ 25.62	$ 554.66	$ -	$ 554.66	$ -
	TOTAL		$ 64.17	$ 186.85	$ 278.01	$ 25.62	$ 554.66	$ -	$ 554.66	$ -
						Transportation	$ -			
						TOTAL COST	$ 554.66			

Table A-33. Nonalpha LLW Case #18 - FTE Summary

Treatment Scenario - Volume Reduction at Regional Treatment Site

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
AMES	x		13	13	28	19	74	74	0
ANLE	x		55	112	320	23	510	510	0
ANLW	x		120	196	846	67	1,229	1,229	0
BAPL	x		87	144	419	24	674	674	0
FNAL	x		37	75	217	48	378	378	0
HANF	x	x	1,977	7,469	13,046	1,072	23,564	7,079	16,485
INEL	x	x	1,089	1,497	10,714	574	13,874	11,639	2,235
ITRI	x		23	52	102	19	197	197	0
KAPL-S	x		90	149	477	24	740	740	0
KCP	x		11	9	10	19	49	49	0
LANL	x	x	423	439	2,840	472	4,174	1,182	2,992
LBL	x		35	75	213	47	371	371	0
LLNL	x	x	247	538	1,518	115	2,418	881	1,537
MOUND	x		157	282	1,058	68	1,565	1,565	0
ORR	x	x	1,999	3,656	21,405	471	27,530	25,579	1,951
PAD	x	x	266	478	2,087	225	3,057	1,325	1,731
PANT	x	x	232	283	1,375	294	2,184	999	1,185
PORTS		x	210	482	1,860	267	2,818	0	2,818
PIN	x		11	9	12	8	40	40	0
PPPL	x		11	9	8	19	47	47	0
RFP	x	x	282	307	2,021	286	2,896	892	2,004
RMI	x		155	280	1,085	79	1,600	1,600	0
SLAC	x		52	112	337	44	544	544	0
SNLA	x		34	79	185	19	317	317	0
SNLL	x		19	37	66	19	141	141	0
SRS	x	x	2,036	8,003	12,778	932	23,749	8,069	15,679
	TOTAL		9,669	24,787	75,027	5,255	114,739	66,121	48,616
						TOTAL FTE	114,739		

Table A-34. Alpha LLW Case #18 - FTE Summary

Treatment Scenario - Volume Reduction at Regional Treatment Site

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
INEL	X		381	709	1,792	102	2,985	2,985	0
	TOTAL		381	709	1,792	102	2,985	2,985	0
						TOTAL FTE	2,985		

Table A-35. Nonalpha LLW Case #19 - PLCC Summary

Treatment Scenario - Volume Reduction at Regional Treatment Site

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
AMES	x		$ 2.12	$ 3.73	$ 4.55	$ 4.80	$ 15.19	$ -	$ 15.19	$ -
ANLE	x		$ 9.05	$ 30.08	$ 60.96	$ 5.74	$ 105.83	$ -	$ 105.83	$ -
ANLW	x		$ 19.82	$ 51.45	$ 152.53	$ 16.78	$ 240.59	$ -	$ 240.59	$ -
BAPL	x		$ 14.31	$ 38.75	$ 106.65	$ 6.12	$ 165.84	$ -	$ 165.84	$ -
FNAL	x		$ 6.07	$ 19.90	$ 36.43	$ 11.95	$ 74.35	$ -	$ 74.35	$ -
HANF	x	x	$ 329.67	$ 1,778.63	$ 2,448.31	$ 268.21	$ 4,824.82	$ -	$ 1,269.10	$ 3,555.72
INEL	x	x	$ 204.40	$ 403.16	$ 1,901.71	$ 179.42	$ 2,688.70	$ -	$ 2,070.21	$ 618.48
ITRI	x		$ 3.76	$ 14.16	$ 16.93	$ 4.80	$ 39.65	$ -	$ 39.65	$ -
KAPL-S	x		$ 14.89	$ 40.25	$ 111.51	$ 5.92	$ 172.56	$ -	$ 172.56	$ -
KCP	x		$ 1.76	$ 2.46	$ 1.63	$ 4.80	$ 10.65	$ -	$ 10.65	$ -
LANL	x	x	$ 66.17	$ 109.12	$ 521.31	$ 107.08	$ 803.68	$ -	$ 254.29	$ 549.39
LBL	x		$ 5.69	$ 19.99	$ 33.25	$ 11.87	$ 70.80	$ -	$ 70.80	$ -
LLNL	x		$ 12.94	$ 44.50	$ 92.74	$ 10.81	$ 160.99	$ -	$ 160.99	$ -
MOUND	x		$ 26.00	$ 74.55	$ 204.01	$ 17.08	$ 321.63	$ -	$ 321.63	$ -
NTS		x	$ 12.74	$ 14.69	$ 165.04	$ 17.61	$ 210.07	$ -	$ -	$ 210.07
ORR	x	x	$ 367.25	$ 974.31	$ 3,847.94	$ 141.43	$ 5,330.94	$ -	$ 4,528.39	$ 802.55
PAD	x		$ 21.74	$ 59.84	$ 174.05	$ 20.15	$ 275.78	$ -	$ 275.78	$ -
PANT	x		$ 18.30	$ 54.60	$ 139.00	$ 14.32	$ 226.22	$ -	$ 226.22	$ -
PIN	x		$ 1.80	$ 2.52	$ 1.99	$ 1.94	$ 8.25	$ -	$ 8.25	$ -
PPPL	x		$ 1.73	$ 2.46	$ 1.32	$ 4.80	$ 10.31	$ -	$ 10.31	$ -
RFP	x		$ 14.28	$ 45.55	$ 104.66	$ 12.26	$ 176.75	$ -	$ 176.75	$ -
RMI	x		$ 25.79	$ 74.12	$ 202.18	$ 19.69	$ 321.78	$ -	$ 321.78	$ -
SLAC	x		$ 8.55	$ 30.17	$ 56.45	$ 10.88	$ 106.05	$ -	$ 106.05	$ -
SNLA	x		$ 5.54	$ 21.24	$ 31.29	$ 4.82	$ 62.88	$ -	$ 62.88	$ -
SNLL	x		$ 2.99	$ 10.16	$ 10.87	$ 4.80	$ 28.81	$ -	$ 28.81	$ -
SRS	x	x	$ 326.99	$ 1,758.25	$ 2,994.65	$ 225.23	$ 5,305.12	$ 626.00	$ 1,267.24	$ 3,411.88
	TOTAL		$ 1,524.34	$ 5,678.64	$ 13,421.97	$ 1,133.29	$ 21,758.24	$ 626.00	$ 11,984.14	$ 9,148.09
						Transportation	$ 327.52			
						TOTAL COST	$ 22,085.76			

Table A-36. Alpha LLW Case #19 - PLCC Summary

Treatment Scenario - Volume Reduction at Regional Treatment Site

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
INEL	x		$ 64.17	$ 186.85	$ 278.01	$ 25.62	$ 554.66	$ -	$ 554.66	$ -
	TOTAL		$ 64.17	$ 186.85	$ 278.01	$ 25.62	$ 554.66	$ -	$ 554.66	$ -
						Transportation	$ -			
						TOTAL COST	$ 554.66			

Table A-37. Nonalpha LLW Case #19 - FTE Summary

Treatment Scenario - Volume Reduction at Regional Treatment Site

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
AMES	x		13	13	28	19	74	74	0
ANLE	x		55	112	320	23	510	510	0
ANLW	x		120	196	846	67	1,229	1,229	0
BAPL	x		87	144	419	24	674	674	0
FNAL	x		37	75	217	48	378	378	0
HANF	x	x	1,977	7,476	13,050	1,073	23,577	7,086	16,491
INEL	x	x	1,224	1,581	11,174	718	14,696	11,639	3,057
ITRI	x		23	52	102	19	197	197	0
KAPL-S	x		90	149	477	24	740	740	0
KCP	x		11	9	10	19	49	49	0
LANL	x	x	398	418	2,708	428	3,953	1,182	2,770
LBL	x		35	75	213	47	371	371	0
LLNL	x		78	165	594	43	881	881	0
MOUND	x		157	282	1,058	68	1,565	1,565	0
NTS		x	76	55	884	70	1,085	0	1,085
ORR	x	x	2,201	4,134	23,212	566	30,113	25,579	4,534
PAD	x		131	225	889	81	1,325	1,325	0
PANT	x		111	204	628	57	999	999	0
PIN	x		11	9	12	8	40	40	0
PPPL	x		11	9	8	19	47	47	0
RFP	x		86	170	587	49	892	892	0
RMI	x		155	280	1,085	79	1,600	1,600	0
SLAC	x		52	112	337	44	544	544	0
SNLA	x		34	79	185	19	317	317	0
SNLL	x		19	37	66	19	141	141	0
SRS	x	x	1,959	7,371	12,247	901	22,478	6,758	15,720
	TOTAL		9,151	23,434	71,356	4,533	108,474	64,817	43,657
						TOTAL FTE	108,474		

Table A-38. Alpha LLW Case #19 - FTE Summary

Treatment Scenario - Volume Reduction at Regional Treatment Site

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
INEL	X		381	709	1,792	102	2,985	2,985	0
	TOTAL		381	709	1,792	102	2,985	2,985	0
						TOTAL FTE	2,985		

Table A-39. Nonalpha LLW Case #21 - PLCC Summary

Treatment Scenario - Volume Reduction at Regional Treatment Site

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
AMES	x		$ 2.12	$ 3.73	$ 4.55	$ 4.80	$ 15.19	$ -	$ 15.19	$ -
ANLE	x		$ 9.05	$ 30.08	$ 60.96	$ 5.74	$ 105.83	$ -	$ 105.83	$ -
ANLW	x		$ 20.58	$ 54.41	$ 158.73	$ 16.79	$ 250.52	$ -	$ 250.52	$ -
BAPL	x		$ 14.31	$ 38.75	$ 106.65	$ 6.12	$ 165.84	$ -	$ 165.84	$ -
FNAL	x		$ 6.07	$ 19.90	$ 36.43	$ 11.95	$ 74.35	$ -	$ 74.35	$ -
HANF	x	x	$ 929.73	$ 3,218.81	$ 9,403.80	$ 376.55	$ 13,928.89	$ -	$ 7,982.52	$ 5,946.38
INEL	x		$ 17.04	$ 47.17	$ 129.38	$ 8.61	$ 202.21	$ -	$ 202.21	$ -
ITRI	x		$ 3.76	$ 14.16	$ 16.93	$ 4.80	$ 39.65	$ -	$ 39.65	$ -
KAPL-S	x		$ 14.89	$ 40.25	$ 111.51	$ 5.92	$ 172.56	$ -	$ 172.56	$ -
KCP	x		$ 1.76	$ 2.46	$ 1.63	$ 4.80	$ 10.65	$ -	$ 10.65	$ -
LANL	x		$ 20.44	$ 58.18	$ 157.55	$ 18.11	$ 254.29	$ -	$ 254.29	$ -
LBL	x		$ 5.69	$ 19.99	$ 33.25	$ 11.87	$ 70.80	$ -	$ 70.80	$ -
LLNL	x		$ 12.94	$ 44.50	$ 92.74	$ 10.81	$ 160.99	$ -	$ 160.99	$ -
MOUND	x		$ 26.00	$ 74.55	$ 204.01	$ 17.08	$ 321.63	$ -	$ 321.63	$ -
NRF	x		$ 12.37	$ 29.04	$ 91.40	$ 2.66	$ 135.47	$ -	$ 135.47	$ -
ORR	x		$ 49.77	$ 160.96	$ 398.44	$ 27.52	$ 636.69	$ -	$ 636.69	$ -
PAD	x		$ 21.74	$ 59.84	$ 174.05	$ 20.15	$ 275.78	$ -	$ 275.78	$ -
PANT	x		$ 18.30	$ 54.60	$ 139.00	$ 14.32	$ 226.22	$ -	$ 226.22	$ -
PIN	x		$ 1.80	$ 2.52	$ 1.99	$ 1.94	$ 8.25	$ -	$ 8.25	$ -
PPPL	x		$ 1.73	$ 2.46	$ 1.32	$ 4.80	$ 10.31	$ -	$ 10.31	$ -
RFP	x		$ 14.28	$ 45.55	$ 104.66	$ 12.26	$ 176.75	$ -	$ 176.75	$ -
RMI	x		$ 25.79	$ 74.12	$ 202.18	$ 19.69	$ 321.78	$ -	$ 321.78	$ -
SLAC	x		$ 8.55	$ 30.17	$ 56.45	$ 10.88	$ 106.05	$ -	$ 106.05	$ -
SNLA	x		$ 5.54	$ 21.24	$ 31.29	$ 4.82	$ 62.88	$ -	$ 62.88	$ -
SNLL	x		$ 2.99	$ 10.16	$ 10.87	$ 4.80	$ 28.81	$ -	$ 28.81	$ -
SRS	x		$ 68.27	$ 224.23	$ 1,176.85	$ 40.83	$ 1,510.18	$ 626.00	$ 884.18	$ -
	TOTAL		$ 1,315.49	$ 4,381.84	$ 12,906.64	$ 668.60	$ 19,272.58	$ 626.00	$ 12,700.20	$ 5,946.38
						Transportation	$ -			
						TOTAL COST	$ 19,272.58			

Table A-40. Alpha LLW Case #21 - PLCC Summary

Treatment Scenario - Volume Reduction at Regional Treatment Site

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
HANF	X		$ 64.18	$ 186.85	$ 278.12	$ 25.62	$ 554.77	$ -	$ 554.77	$ -
	TOTAL		$ 64.18	$ 186.85	$ 278.12	$ 25.62	$ 554.77	$ -	$ 554.77	$ -
						Transportation	$ -			
						TOTAL COST	$ 554.77			

Table A-41. Nonalpha LLW Case #21 - FTE Summary

Treatment Scenario - Volume Reduction at Regional Treatment Site

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
AMES	x		13	13	28	19	74	74	0
ANLE	x		55	112	320	23	510	510	0
ANLW	x		124	208	881	67	1,280	1,280	0
BAPL	x		87	144	419	24	674	674	0
FNAL	x		37	75	217	48	378	378	0
HANF	x	x	5,575	14,070	53,160	1,506	74,312	45,803	28,509
INEL	x		103	176	597	34	911	911	0
ITRI	x		23	52	102	19	197	197	0
KAPL-S	x		90	149	477	24	740	740	0
KCP	x		11	9	10	19	49	49	0
LANL	x		123	220	767	72	1,182	1,182	0
LBL	x		35	75	213	47	371	371	0
LLNL	x		78	165	594	43	881	881	0
MOUND	x		157	282	1,058	68	1,565	1,565	0
NRF	x		75	109	360	11	555	555	0
ORR	x		299	619	1,932	110	2,961	2,961	0
PAD	x		131	225	889	81	1,325	1,325	0
PANT	x		111	204	628	57	999	999	0
PIN	x		11	9	12	8	40	40	0
PPPL	x		11	9	8	19	47	47	0
RFP	x		86	170	587	49	892	892	0
RMI	x		155	280	1,085	79	1,600	1,600	0
SLAC	x		52	112	337	44	544	544	0
SNLA	x		34	79	185	19	317	317	0
SNLL	x		19	37	66	19	141	141	0
SRS	x		410	894	3,102	163	4,570	4,570	0
	TOTAL		7,907	18,499	68,033	2,674	97,114	68,605	28,509
						TOTAL FTE	97,114		

Table A-42. Alpha LLW Case #21 - FTE Summary

Treatment Scenario - Volume Reduction at Regional Treatment Site

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
HANF	X		381	709	1,792	102	2,986	2,986	0
	TOTAL		381	709	1,792	102	2,986	2,986	0
						TOTAL FTE	2,986		

Appendix B

Mixed Low-Level Waste

Table B-1. Nonalpha MLLW Case #1 - PLCC Summary
Treatment Scenario - Base Case RCRA Treatment

				COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION			
Site Name	Treatment Site	Storage Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Storage Total ($M)	Disposal Total ($M)
AMES	x	x		$ 2.11	$ 5.66	$ 4.01	$ 1.46	$ 13.24	$ -	$ 6.35	$ 6.89	$ -
ANLE	x	x		$ 15.28	$ 53.20	$ 124.53	$ 13.72	$ 206.73	$ -	$ 88.47	$ 118.26	$ -
ANLW	x			$ 1.75	$ 2.65	$ 1.48	$ 0.48	$ 6.35	$ -	$ 6.35	$ -	$ -
BAPL	x	x		$ 2.11	$ 5.66	$ 4.01	$ 1.46	$ 13.24	$ -	$ 6.35	$ 6.89	$ -
BCL	x	x		$ 2.11	$ 5.66	$ 4.01	$ 1.46	$ 13.24	$ -	$ 6.35	$ 6.89	$ -
BNL	x	x		$ 2.02	$ 3.99	$ 8.65	$ 10.49	$ 25.15	$ -	$ 10.27	$ 14.88	$ -
CNS	x	x		$ 2.11	$ 5.66	$ 4.01	$ 1.46	$ 13.24	$ -	$ 6.35	$ 6.89	$ -
FEMP	x	x		$ 8.96	$ 30.41	$ 60.10	$ 7.60	$ 107.07	$ -	$ 48.01	$ 59.06	$ -
GA	x	x		$ 2.11	$ 5.66	$ 4.01	$ 1.46	$ 13.24	$ -	$ 6.35	$ 6.89	$ -
GJPO	x	x		$ 2.11	$ 5.66	$ 4.01	$ 1.46	$ 13.24	$ -	$ 6.35	$ 6.89	$ -
HANF	x	x		$ 9.02	$ 30.04	$ 253.25	$ 22.90	$ 315.21	$ 76.06	$ 105.58	$ 133.58	$ -
ITRI	x	x		$ 2.11	$ 5.66	$ 4.01	$ 1.46	$ 13.24	$ -	$ 6.35	$ 6.89	$ -
KAPL - K	x	x		$ 2.18	$ 5.66	$ 4.64	$ 1.46	$ 13.94	$ -	$ 7.05	$ 6.89	$ -
KAPL - S	x	x		$ 1.82	$ 2.65	$ 4.64	$ 10.30	$ 19.40	$ -	$ 7.05	$ 12.35	$ -
KAPL - W	x	x		$ 2.11	$ 5.66	$ 4.01	$ 1.46	$ 13.24	$ -	$ 6.35	$ 6.89	$ -
KCP	x	x		$ 2.11	$ 5.66	$ 4.01	$ 1.46	$ 13.24	$ -	$ 6.35	$ 6.89	$ -
LBL	x	x		$ 1.82	$ 2.65	$ 4.64	$ 10.30	$ 19.40	$ -	$ 7.05	$ 12.35	$ -
LERH	x	x		$ 2.11	$ 5.66	$ 4.01	$ 1.46	$ 13.24	$ -	$ 6.35	$ 6.89	$ -
LLNL	x	x		$ 3.93	$ 11.97	$ 46.81	$ 11.84	$ 74.56	$ -	$ 36.91	$ 37.64	$ -
MARE	x	x		$ 2.11	$ 5.66	$ 4.01	$ 1.46	$ 13.24	$ -	$ 6.35	$ 6.89	$ -
NNS	x	x		$ 2.11	$ 5.66	$ 4.01	$ 1.46	$ 13.24	$ -	$ 6.35	$ 6.89	$ -
NTS	x	x		$ 2.11	$ 5.66	$ 4.01	$ 1.46	$ 13.24	$ -	$ 6.35	$ 6.89	$ -
ORR	x	x		$ 8.44	$ 29.34	$ 505.05	$ 47.25	$ 590.08	$ 17.54	$ 416.25	$ 156.29	$ -
PAD	x	x		$ 2.62	$ 6.64	$ 21.09	$ 10.97	$ 41.32	$ -	$ 18.85	$ 22.47	$ -
PANT	x	x		$ 2.53	$ 3.99	$ 20.87	$ 10.49	$ 37.89	$ -	$ 15.42	$ 22.47	$ -
PEARL	x	x		$ 2.11	$ 5.66	$ 4.01	$ 1.46	$ 13.24	$ -	$ 6.35	$ 6.89	$ -
PNS	x	x		$ 2.11	$ 5.66	$ 4.01	$ 1.46	$ 13.24	$ -	$ 6.35	$ 6.89	$ -
PORTS	x	x		$ 8.12	$ 28.29	$ 154.23	$ 19.35	$ 209.99	$ -	$ 94.59	$ 115.40	$ -
PPPL	x	x		$ 2.11	$ 5.66	$ 4.01	$ 1.46	$ 13.24	$ -	$ 6.35	$ 6.89	$ -
PUGET	x	x		$ 2.25	$ 5.66	$ 5.27	$ 1.46	$ 14.64	$ -	$ 7.76	$ 6.89	$ -
RMI	x	x		$ 2.11	$ 5.66	$ 4.01	$ 1.46	$ 13.24	$ -	$ 6.35	$ 6.89	$ -
SNLA	x	x		$ 1.75	$ 2.65	$ 4.01	$ 10.30	$ 18.70	$ -	$ 6.35	$ 12.35	$ -
SNLL	x	x		$ 1.82	$ 2.65	$ 4.64	$ 10.30	$ 19.40	$ -	$ 7.05	$ 12.35	$ -
SRS	x	x		$ 6.49	$ 23.87	$ 287.63	$ 28.50	$ 346.48	$ -	$ 281.02	$ 65.46	$ -
	TOTAL			$ 116.64	$ 342.55	$ 1,579.62	$ 252.56	$ 2,291.37	$ 93.60	$ 1,272.02	$ 925.75	$ -
							Transportation	$ -				
							TOTAL COST	$ 2,291.37				

Table B-2. Alpha MLLW Case #1 - PLCC Summary
Treatment Scenario - Base Case RCRA Treatment

				COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION			
Site Name	Treatment Site	Storage Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Storage Total ($M)	Disposal Total ($M)
BAPL	x	x		$ 8.99	$ 10.55	$ 4.89	$ 1.18	$ 25.60	$ -	$ 7.01	$ 18.60	$ -
INEL	x	x		$ 46.54	$ 204.11	$ 230.67	$ 134.31	$ 615.63	$ -	$ 315.53	$ 300.10	$ -
LANL	x	x		$ 19.20	$ 72.32	$ 78.66	$ 6.21	$ 176.39	$ -	$ 45.88	$ 130.51	$ -
LLNL	x	x		$ 19.02	$ 72.32	$ 76.95	$ 6.21	$ 174.49	$ -	$ 45.72	$ 128.77	$ -
MOUND	x	x		$ 9.16	$ 10.55	$ 6.45	$ 1.18	$ 27.34	$ -	$ 7.01	$ 20.34	$ -
RFP	x	x		$ 85.33	$ 539.33	$ 675.22	$ 259.75	$ 1,559.63	$ 96.97	$ 968.58	$ 494.08	$ -
SRS	x	x		$ 20.13	$ 74.59	$ 86.11	$ 6.46	$ 187.29	$ -	$ 50.36	$ 136.92	$ -
UOM	x	x		$ 8.99	$ 10.55	$ 4.89	$ 1.18	$ 25.60	$ -	$ 7.01	$ 18.60	$ -
WVDP	x	x		$ 9.01	$ 10.55	$ 5.07	$ 1.18	$ 25.80	$ -	$ 7.21	$ 18.60	$ -
	TOTAL			$ 226.35	$ 1,004.87	$ 1,168.88	$ 417.66	$ 2,817.77	$ 96.97	$ 1,454.29	$ 1,266.51	$ -
							Transportation	$ -				
							TOTAL COST	$ 2,817.77				

Table B-3. RH MLLW Case #1 - PLCC Summary
Treatment Scenario - Base Case RCRA Treatment

				COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Storage Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Treatment Total ($M)	Storage Total ($M)	Disposal Total ($M)
ANLW	x			$ 1.78	$ 3.57	$ 1.54	$ 0.54	$ 7.43	$ 7.43	$ -	$ -
BAPL	x	x		$ 8.78	$ 6.77	$ 4.38	$ 1.03	$ 20.97	$ 7.43	$ 13.54	$ -
HANF	x	x		$ 8.78	$ 6.77	$ 4.38	$ 1.03	$ 20.97	$ 7.43	$ 13.54	$ -
INEL	x	x		$ 25.41	$ 108.90	$ 130.05	$ 9.37	$ 273.73	$ 74.88	$ 198.85	$ -
ORR	x	x		$ 29.77	$ 140.45	$ 161.76	$ 11.40	$ 343.38	$ 75.49	$ 267.88	$ -
SRS	x	x		$ 10.13	$ 12.06	$ 15.33	$ 1.04	$ 38.56	$ 7.43	$ 31.14	$ -
TOTAL				$ 84.66	$ 278.52	$ 317.44	$ 24.41	$ 705.03	$ 180.08	$ 524.95	$ -
							Transportation	$ -			
							TOTAL COST	$ 705.03			

Table B-4. Nonalpha MLLW Case #1 - FTE Summary

Treatment Scenario - Base Case RCRA Treatment

				FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION		
Site Name	Treatment Site	Storage Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Storage Total (FTE)	Disposal Total (FTE)
AMES	x	x		13	21	22	6	62	30	32	0
ANLE	x	x		92	198	778	55	1124	448	675	0
ANLW	x			11	10	7	2	30	30	0	0
BAPL	x	x		13	21	22	6	62	30	32	0
BCL	x	x		13	21	22	6	62	30	32	0
BNL	x	x		13	15	54	42	124	52	72	0
CNS	x	x		13	21	22	6	63	30	32	0
FEMP	x	x		54	114	380	30	579	249	330	0
GA	x	x		13	21	23	6	64	32	32	0
GJPO	x	x		13	21	22	6	62	30	32	0
HANF	x	x		55	112	1060	92	1318	509	809	0
ITRI	x	x		13	21	22	6	62	30	32	0
KAPL - K	x	x		14	21	28	6	69	37	32	0
KAPL - S	x	x		12	10	27	41	90	36	54	0
KAPL - W	x	x		13	21	22	6	63	31	32	0
KCP	x	x		13	21	22	6	62	30	32	0
LBL	x	x		12	10	27	41	89	35	54	0
LERH	x	x		13	21	22	6	62	30	32	0
LLNL	x	x		24	45	298	47	414	192	222	0
MARE	x	x		13	21	23	6	64	32	32	0
NNS	x	x		13	21	22	6	62	30	32	0
NTS	x	x		13	21	22	6	62	30	32	0
ORR	x	x		51	110	3185	189	3535	2595	940	0
PAD	x	x		16	25	132	44	217	96	121	0
PANT	x	x		16	15	130	42	203	80	123	0
PEARL	x	x		13	21	22	6	62	30	32	0
PNS	x	x		13	21	22	6	62	30	32	0
PORTS	x	x		49	105	943	77	1175	471	705	0
PPPL	x	x		13	21	22	6	62	30	32	0
PUGET	x	x		14	21	31	6	72	40	32	0
RMI	x	x		13	21	23	6	63	31	32	0
SNLA	x	x		11	10	23	41	85	31	54	0
SNLL	x	x		12	10	28	41	91	37	54	0
SRS	x	x		40	89	1917	114	2160	1756	404	0
	TOTAL			723	1284	9421	1010	12438	7211	5227	0
							TOTAL FTE	12,438			

Table B-5. Alpha MLLW Case #1 - FTE Summary

Treatment Scenario - Base Case RCRA Treatment

				FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION		
Site Name	Treatment Site	Storage Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Storage Total (FTE)	Disposal Total (FTE)
BAPL	x	x		55	42	25	5	126	34	91	0
INEL	x	x		275	795	1434	537	3041	1594	1448	0
LANL	x	x		116	292	401	25	834	251	583	0
LLNL	x	x		115	292	395	25	827	250	576	0
MOUND	x	x		56	42	31	5	133	36	97	0
RFP	x	x		511	2115	3480	1039	7145	4812	2333	0
SRS	x	x		121	301	440	26	888	276	613	0
UOM	x	x		55	42	24	5	125	34	91	0
WVDP	x	x		55	42	27	5	128	37	91	0
	TOTAL			1359	3961	6257	1671	13247	7324	5923	0
							TOTAL FTE	13,247			

Table B-6. Remote Handled MLLW Case #1 - FTE Summary

Treatment Scenario - Base Case RCRA Treatment

				FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION		
Site Name	Treatment Site	Storage Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Storage Total (FTE)	Disposal Total (FTE)
ANLW	x			12	14	7	2	35	34	0	0
BAPL	x	x		54	25	21	4	104	34	69	0
HANF	x	x		54	25	21	4	104	34	69	0
INEL	x	x		153	443	647	37	1280	378	902	0
ORR	x	x		180	577	806	46	1609	381	1227	0
SRS	x	x		62	44	41	4	151	35	116	0
	TOTAL			515	1128	1543	97	3283	897	2383	0
							TOTAL FTE	3,283			

Table B-7. Nonalpha MLLW Case #2 - PLCC Summary
Treatment Scenario - Base Case RCRA Treatment

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
ANLE	x	x	$ 72.22	$ 206.95	$ 431.22	$ 28.62	$ 739.02	$ -	$ 431.01	$ 308.01
ANLW	x		$ 1.75	$ 2.65	$ 1.48	$ 0.48	$ 6.35	$ -	$ 6.35	$ -
BAPL	x		$ 21.34	$ 47.30	$ 20.68	$ 8.95	$ 98.27	$ -	$ 98.27	$ -
BNL	x		$ 13.56	$ 43.50	$ 36.73	$ 6.07	$ 99.86	$ -	$ 99.86	$ -
CISS	x		$ 6.87	$ 27.06	$ 27.06	$ 1.19	$ 62.18	$ -	$ 62.18	$ -
CNS	x		$ 13.04	$ 42.19	$ 19.33	$ 5.78	$ 80.34	$ -	$ 80.34	$ -
ETEC	x		$ 22.84	$ 58.97	$ 94.00	$ 8.86	$ 184.68	$ -	$ 184.68	$ -
FEMP	x	x	$ 43.35	$ 118.29	$ 197.72	$ 24.50	$ 383.85	$ -	$ 342.75	$ 41.10
GA	x		$ 21.10	$ 44.12	$ 40.29	$ 6.04	$ 111.55	$ -	$ 111.55	$ -
HANF	x	x	$ 79.30	$ 186.58	$ 619.33	$ 50.02	$ 935.23	$ 76.06	$ 610.60	$ 248.58
KAPL - K	x		$ 21.38	$ 45.42	$ 36.22	$ 6.32	$ 109.35	$ -	$ 109.35	$ -
KAPL - S	x		$ 21.29	$ 45.42	$ 31.10	$ 6.32	$ 104.13	$ -	$ 104.13	$ -
KAPL - W	x		$ 21.10	$ 44.12	$ 21.95	$ 6.04	$ 93.21	$ -	$ 93.21	$ -
LBL	x		$ 21.36	$ 45.42	$ 26.80	$ 8.95	$ 102.52	$ -	$ 102.52	$ -
LERH	x		$ 9.06	$ 39.80	$ 5.39	$ 5.72	$ 59.98	$ -	$ 59.98	$ -
MARE	x		$ 21.26	$ 45.42	$ 29.91	$ 6.32	$ 102.92	$ -	$ 102.92	$ -
MOUND	x		$ 0.13	$ 1.30	$ 0.84	$ 0.29	$ 2.56	$ -	$ 2.56	$ -
NNS	x		$ 13.14	$ 43.50	$ 19.92	$ 6.07	$ 82.62	$ -	$ 82.62	$ -
ORR	x	x	$ 82.46	$ 232.81	$ 713.91	$ 68.41	$ 1,097.60	$ 17.54	$ 855.69	$ 224.36
PAD	x	x	$ 32.57	$ 90.30	$ 76.31	$ 21.58	$ 220.76	$ -	$ 178.84	$ 41.92
PANT	x	x	$ 32.21	$ 67.57	$ 80.71	$ 11.24	$ 191.72	$ -	$ 151.53	$ 40.19
PEARL	x		$ 10.59	$ 21.44	$ 10.12	$ 6.49	$ 48.64	$ -	$ 48.64	$ -
PORTS	x	x	$ 76.39	$ 235.96	$ 465.07	$ 44.52	$ 821.94	$ -	$ 684.64	$ 137.30
PUGET	x		$ 21.63	$ 44.12	$ 54.95	$ 6.04	$ 126.74	$ -	$ 126.74	$ -
RMI	x		$ 13.04	$ 42.19	$ 30.05	$ 5.78	$ 91.07	$ -	$ 91.07	$ -
SNLA	x		$ 14.26	$ 27.68	$ 28.12	$ 3.10	$ 73.16	$ -	$ 73.16	$ -
SNLL	x		$ -	$ -	$ 2.11	$ 4.80	$ 6.91	$ -	$ 6.91	$ -
SRS	x	x	$ 47.06	$ 109.73	$ 337.60	$ 96.97	$ 591.36	$ -	$ 408.76	$ 182.60
WVDP		x	$ 0.64	$ 3.01	$ 5.06	$ 0.98	$ 9.69	$ -	$ -	$ 9.69
	TOTAL		$ 754.96	$ 1,962.81	$ 3,463.99	$ 456.44	$ 6,638.21	$ 93.60	$ 5,310.86	$ 1,233.75
						Transportation	$ 0.49			
						TOTAL COST	$ 6,638.69			

Table B-8. Alpha MLLW Case #2 - PLCC Summary
Treatment Scenario - Base Case RCRA Treatment

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
BAPL	x		$ 1.78	$ 3.57	$ 1.12	$ 0.54	$ 7.01	$ -	$ 7.01	$ -
INEL	x	x	$ 116.20	$ 407.37	$ 614.43	$ 42.14	$ 1,180.14	$ -	$ 843.55	$ 336.59
LANL	x	x	$ 56.32	$ 179.33	$ 228.37	$ 19.49	$ 483.51	$ -	$ 405.00	$ 78.51
LLNL	x		$ 39.53	$ 124.05	$ 149.33	$ 14.49	$ 327.41	$ -	$ 327.41	$ -
MOUND	x		$ 1.78	$ 3.57	$ 1.12	$ 0.54	$ 7.01	$ -	$ 7.01	$ -
NTS		x	$ 12.87	$ 26.87	$ 50.24	$ 3.49	$ 93.46	$ -	$ -	$ 93.46
RFP	x	x	$ 152.13	$ 865.21	$ 1,059.25	$ 336.73	$ 2,413.33	$ 96.97	$ 1,724.96	$ 591.39
SRS	x	x	$ 67.53	$ 185.69	$ 248.78	$ 21.50	$ 523.51	$ -	$ 416.71	$ 106.80
WVDP	x		$ 1.78	$ 3.57	$ 1.12	$ 0.54	$ 7.01	$ -	$ 7.01	$ -
	TOTAL		$ 449.92	$ 1,799.24	$ 2,353.76	$ 439.45	$ 5,042.37	$ 96.97	$ 3,738.65	$ 1,206.75
						Transportation	$ 0.17			
						TOTAL COST	$ 5,042.54			

Table B-9. Nonalpha MLLW Case #2 - FTE Summary

Treatment Scenario - Base Case RCRA Treatment

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
ANLE	x	x	431	791	2,411	114	3,747	2,376	1,371
ANLW	x		11	10	7	2	30	30	0
BAPL	x		127	176	100	36	440	440	0
BNL	x		80	162	206	24	472	472	0
CISS	x		40	100	140	5	285	285	0
CNS	x		77	158	95	23	352	352	0
ETEC	x		136	216	610	35	997	997	0
FEMP	x	x	256	435	1,294	98	2,083	1,857	226
GA	x		126	164	184	24	499	499	0
HANF	x	x	473	686	3,486	200	4,844	3,420	1,424
KAPL - K	x		128	169	193	25	515	515	0
KAPL - S	x		127	169	165	25	486	486	0
KAPL - W	x		126	164	109	24	423	423	0
LBL	x		127	169	148	36	481	481	0
LERH	x		54	149	31	23	258	258	0
MARE	x		127	169	155	25	477	477	0
MOUND	x		1	5	4	1	11	11	0
NNS	x		78	162	94	24	358	358	0
ORR	x	x	493	857	4,475	274	6,098	4,830	1,268
PAD	x	x	193	332	515	86	1,127	946	180
PANT	x	x	193	254	450	45	942	770	172
PEARL	x		62	80	53	26	221	221	0
PORTS	x	x	455	868	3,020	178	4,520	3,739	781
PUGET	x		129	164	292	24	610	610	0
RMI	x		77	158	142	23	400	400	0
SNLA	x		85	102	141	12	341	341	0
SNLL	x		0	0	14	19	33	33	0
SRS	x	x	282	406	2,127	388	3,202	2,316	886
WVDP		x	4	12	33	4	52	0	52
	TOTAL		4,498	7,287	20,693	1,826	34,303	27,942	6,361
						TOTAL FTE	34,303		

Table B-10. Alpha MLLW Case #2 - FTE Summary

Treatment Scenario - Base Case RCRA Treatment

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
BAPL	x		11	14	7	2	34	34	0
HANF									0
INEL	x	x	691	1572	3555	169	5987	4481	1506
LANL	x	x	333	680	1329	78	2420	2091	329
LLNL	x		233	469	946	58	1706	1706	0
MOUND	x		11	14	9	2	36	36	0
NTS		x	77	104	188	14	383	0	383
RFP	x	x	909	3367	6110	1347	11732	8965	2768
SRS	x	x	399	707	1448	86	2639	2197	442
UOM									0
WVDP	x		11	14	9	2	36	36	0
	TOTAL		2676	6939	13601	1758	24974	19545	5429
						TOTAL FTE	24,974		

Table B-11. Nonalpha MLLW Case #4 - PLCC Summary
Treatment Scenario - Base Case RCRA Treatment

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
ANLE	x		$ 7.56	$ 17.74	$ 61.01	$ 9.61	$ 95.92	$ -	$ 95.92	$ -
ANLW	x		$ 1.75	$ 2.65	$ 1.48	$ 0.48	$ 6.35	$ -	$ 6.35	$ -
BAPL	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
BNL	x		$ -	$ -	$ 3.59	$ 4.80	$ 8.38	$ -	$ 8.38	$ -
CNS	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
FEMP	x	x	$ 67.34	$ 185.16	$ 301.98	$ 29.68	$ 584.17	$ -	$ 543.06	$ 41.10
GA	x		$ 7.56	$ 17.74	$ 25.86	$ 5.21	$ 56.38	$ -	$ 56.38	$ -
HANF	x	x	$ 92.20	$ 240.23	$ 624.27	$ 56.32	$ 1,013.02	$ 76.06	$ 697.30	$ 239.66
KAPL - K	x		$ -	$ -	$ 2.11	$ 4.80	$ 6.91	$ -	$ 6.91	$ -
KAPL - S	x		$ -	$ -	$ 2.11	$ 4.80	$ 6.91	$ -	$ 6.91	$ -
KAPL - W	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
LBL	x		$ -	$ -	$ 2.11	$ 4.80	$ 6.91	$ -	$ 6.91	$ -
LERH	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
LLNL	x	x	$ 56.15	$ 122.32	$ 278.63	$ 22.01	$ 479.11	$ -	$ 332.67	$ 146.44
MARE	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
NNS	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
ORR	x	x	$ 75.51	$ 218.14	$ 645.31	$ 62.17	$ 1,001.13	$ 17.54	$ 777.35	$ 206.24
PAD	x	x	$ 25.14	$ 63.58	$ 66.42	$ 17.03	$ 172.16	$ -	$ 156.11	$ 16.05
PANT	x	x	$ 31.02	$ 59.76	$ 82.66	$ 12.62	$ 186.06	$ -	$ 145.86	$ 40.19
PEARL	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
PNS	x		$ -	$ -	$ 3.00	$ 4.80	$ 7.79	$ -	$ 7.79	$ -
PORTS	x	x	$ 82.00	$ 239.85	$ 467.64	$ 48.44	$ 837.93	$ -	$ 671.60	$ 166.34
RMI	x		$ 7.56	$ 17.74	$ 16.50	$ 8.08	$ 49.88	$ -	$ 49.88	$ -
SNLA	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
SNLL	x		$ -	$ -	$ 2.36	$ 4.80	$ 7.16	$ -	$ 7.16	$ -
SRS	x	x	$ 54.62	$ 127.51	$ 355.50	$ 100.26	$ 637.89	$ -	$ 455.30	$ 182.60
	TOTAL		$ 508.41	$ 1,312.44	$ 2,954.34	$ 439.07	$ 5,214.26	$ 93.60	$ 4,082.04	$ 1,038.62
						Transportation	$ 1.84			
						TOTAL COST	$ 5,216.10			

Table B-12. Alpha MLLW Case #4 - PLCC Summary
Treatment Scenario - Base Case RCRA Treatment

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
BAPL	x		$ 1.78	$ 3.57	$ 1.12	$ 0.54	$ 7.01	$ -	$ 7.01	$ -
INEL	x	x	$ 116.75	$ 407.37	$ 619.46	$ 42.14	$ 1,185.73	$ -	$ 844.27	$ 341.45
LANL	x	x	$ 65.63	$ 180.09	$ 234.58	$ 19.61	$ 499.91	$ -	$ 421.39	$ 78.51
LLNL	x		$ 42.86	$ 139.94	$ 161.85	$ 16.25	$ 360.89	$ -	$ 360.89	$ -
MOUND	x		$ 1.78	$ 3.57	$ 1.12	$ 0.54	$ 7.01	$ -	$ 7.01	$ -
NTS	x	x	$ 21.99	$ 27.61	$ 54.72	$ 3.60	$ 107.91	$ -	$ 13.40	$ 94.52
RFP	x	x	$ 152.21	$ 865.20	$ 1,059.98	$ 336.73	$ 2,414.12	$ 96.97	$ 1,725.76	$ 591.39
SRS	x	x	$ 67.58	$ 185.69	$ 249.26	$ 21.50	$ 524.04	$ -	$ 417.24	$ 106.80
WVDP	x		$ 1.78	$ 3.57	$ 1.12	$ 0.54	$ 7.01	$ -	$ 7.01	$ -
	TOTAL		$ 472.37	$ 1,816.61	$ 2,383.19	$ 441.43	$ 5,113.61	$ 96.97	$ 3,803.96	$ 1,212.67
						Transportation	$ 0.37			
						TOTAL COST	$ 5,113.97			

Table B-13 Nonalpha MLLW Case #4 - FTE Summary

Treatment Scenario - Base Case RCRA Treatment

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
ANLE	x		45	67	340	38	491	491	0
ANLW	x		11	10	7	2	30	30	0
BAPL	x		0	0	7	19	26	26	0
BNL	x		0	0	22	19	41	41	0
CNS	x		0	0	7	19	27	27	0
FEMP	x	x	398	680	2,002	119	3,198	2,972	226
GA	x		45	67	120	21	253	253	0
HANF	x	x	549	885	3,537	225	5,197	3,827	1,370
KAPL - K	x		0	0	13	19	32	32	0
KAPL - S	x		0	0	12	19	32	32	0
KAPL - W	x		0	0	8	19	27	27	0
LBL	x		0	0	12	19	31	31	0
LERH	x		0	0	7	19	26	26	0
LLNL	x	x	334	458	1,485	88	2,365	1,755	611
MARE	x		0	0	9	19	28	28	0
NNS	x		0	0	7	19	26	26	0
ORR	x	x	451	802	4,031	249	5,533	4,367	1,166
PAD	x	x	150	237	441	68	897	813	84
PANT	x	x	185	224	426	50	885	713	172
PEARL	x		0	0	7	19	26	26	0
PNS	x		0	0	18	19	37	37	0
PORTS	x	x	488	885	3,052	194	4,619	3,676	943
RMI	x		45	67	78	32	223	223	0
SNLA	x		0	0	8	19	27	27	0
SNLL	x		0	0	15	19	34	34	0
SRS	x	x	327	473	2,241	401	3,442	2,555	886
	TOTAL		3,031	4,855	17,911	1,756	27,554	22,096	5,458
						TOTAL FTE	27,554		

Table B-14. Alpha MLLW Case #4 - FTE Summary

Treatment Scenario - Base Case RCRA Treatment

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
BAPL	x		11	14	7	2	34	34	0
INEL	x	x	695	1572	3581	169	6016	4481	1535
LANL	x	x	387	683	1357	78	2505	2176	329
LLNL	x		253	533	1018	65	1869	1869	0
MOUND	x		11	14	9	2	36	36	0
NTS	x	x	130	106	209	14	460	74	386
RFP	x	x	909	3367	6111	1347	11734	8966	2768
SRS	x	x	399	707	1448	86	2640	2198	442
WVDP	x		11	14	9	2	36	36	0
	TOTAL		2807	7008	13749	1766	25330	19870	5460
						TOTAL FTE	25,330		

Table B-15. Nonalpha MLLW Case #7 - PLCC Summary
Treatment Scenario - Base Case RCRA Treatment

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
ANLE	x		$ 7.56	$ 17.74	$ 59.85	$ 9.60	$ 94.76	$ -	$ 94.76	$ -
ANLW	x		$ 1.75	$ 2.65	$ 1.48	$ 0.48	$ 6.35	$ -	$ 6.35	$ -
BAPL	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
BNL	x		$ -	$ -	$ 3.59	$ 4.80	$ 8.38	$ -	$ 8.38	$ -
CNS	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
FEMP	x		$ 11.46	$ 36.13	$ 98.34	$ 10.20	$ 156.13	$ -	$ 156.13	$ -
GA	x		$ 7.56	$ 17.74	$ 25.86	$ 5.21	$ 56.38	$ -	$ 56.38	$ -
HANF	x	x	$ 106.28	$ 328.05	$ 738.68	$ 125.36	$ 1,298.37	$ 76.06	$ 673.03	$ 549.28
KAPL - K	x		$ -	$ -	$ 2.11	$ 4.80	$ 6.91	$ -	$ 6.91	$ -
KAPL - S	x		$ -	$ -	$ 2.11	$ 4.80	$ 6.91	$ -	$ 6.91	$ -
KAPL - W	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
LBL	x		$ -	$ -	$ 2.11	$ 4.80	$ 6.91	$ -	$ 6.91	$ -
LERH	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
LLNL	x		$ -	$ -	$ 18.99	$ 4.80	$ 23.79	$ -	$ 23.79	$ -
MARE	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
NNS	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
ORR	x	x	$ 88.49	$ 225.07	$ 686.36	$ 71.81	$ 1,071.73	$ 17.54	$ 794.34	$ 259.85
PAD	x		$ 7.56	$ 17.74	$ 19.99	$ 9.52	$ 54.82	$ -	$ 54.82	$ -
PANT	x		$ 7.56	$ 17.74	$ 31.92	$ 10.70	$ 67.93	$ -	$ 67.93	$ -
PEARL	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
PORTS	x		$ 80.16	$ 223.53	$ 411.46	$ 34.35	$ 749.50	$ -	$ 749.50	$ -
PUGET	x		$ -	$ -	$ 2.74	$ 4.80	$ 7.54	$ -	$ 7.54	$ -
RMI	x		$ 7.56	$ 17.74	$ 16.50	$ 8.08	$ 49.88	$ -	$ 49.88	$ -
SNLA	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
SNLL	x		$ -	$ -	$ 2.11	$ 4.80	$ 6.91	$ -	$ 6.91	$ -
SRS	x	x	$ 54.80	$ 128.02	$ 357.17	$ 100.32	$ 640.32	$ -	$ 457.72	$ 182.60
	TOTAL		$ 380.75	$ 1,032.16	$ 2,493.19	$ 457.59	$ 4,363.69	$ 93.60	$ 3,278.36	$ 991.73
						Transportation	$ 3.05			
						TOTAL COST	$ 4,366.74			

Table B-16. Alpha MLLW Case #7 - PLCC Summary
Treatment Scenario - Base Case RCRA Treatment

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
BAPL	x		$ 1.78	$ 3.57	$ 1.12	$ 0.54	$ 7.01	$ -	$ 7.01	$ -
INEL	x	x	$ 111.59	$ 360.29	$ 583.97	$ 67.91	$ 1,123.77	$ -	$ 916.46	$ 207.31
LANL	x	x	$ 93.57	$ 211.51	$ 479.86	$ 83.76	$ 868.70	$ -	$ 451.97	$ 416.73
LLNL	x		$ 4.44	$ 21.10	$ 17.28	$ 2.90	$ 45.72	$ -	$ 45.72	$ -
MOUND	x		$ 1.78	$ 3.57	$ 1.12	$ 0.54	$ 7.01	$ -	$ 7.01	$ -
RFP	x		$ 131.90	$ 712.16	$ 913.61	$ 64.64	$ 1,822.31	$ 96.97	$ 1,725.34	$ -
SRS	x	x	$ 67.53	$ 185.69	$ 248.77	$ 21.50	$ 523.49	$ -	$ 416.69	$ 106.80
WVDP	x		$ 1.78	$ 3.57	$ 1.12	$ 0.54	$ 7.01	$ -	$ 7.01	$ -
	TOTAL		$ 414.38	$ 1,501.46	$ 2,246.84	$ 242.32	$ 4,405.00	$ 96.97	$ 3,577.19	$ 730.84
						Transportation	$ 2.14			
						TOTAL COST	$ 4,407.15			

Table B-17. Nonalpha MLLW Case #7 - FTE Summary

Treatment Scenario - Base Case RCRA Treatment

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
ANLE	x		45	67	335	38	486	486	0
ANLW	x		11	10	7	2	30	30	0
BAPL	x		0	0	7	19	26	26	0
BNL	x		0	0	22	19	41	41	0
CNS	x		0	0	7	19	27	27	0
FEMP	x		68	131	593	41	833	833	0
GA	x		45	67	120	21	253	253	0
HANF	x	x	632	1,260	4,085	501	6,479	3,702	2,777
KAPL - K	x		0	0	13	19	32	32	0
KAPL - S	x		0	0	12	19	32	32	0
KAPL - W	x		0	0	8	19	27	27	0
LBL	x		0	0	12	19	31	31	0
LERH	x		0	0	7	19	26	26	0
LLNL	x		0	0	115	19	134	134	0
MARE	x		0	0	9	19	28	28	0
NNS	x		0	0	7	19	26	26	0
ORR	x	x	527	828	4,288	287	5,931	4,462	1,468
PAD	x		45	67	108	38	259	259	0
PANT	x		45	67	156	43	311	311	0
PEARL	x		0	0	7	19	26	26	0
PORTS	x		475	822	2,662	137	4,096	4,096	0
PUGET	x		0	0	17	19	36	36	0
RMI	x		45	67	80	32	225	225	0
SNLA	x		0	0	8	19	27	27	0
SNLL	x		0	0	14	19	33	33	0
SRS	x	x	328	475	2,251	401	3,455	2,569	886
	TOTAL		2,268	3,862	14,951	1,830	22,911	17,779	5,131
						TOTAL FTE	22,911		

Table B-18. Alpha MLLW Case #7 - FTE Summary

Treatment Scenario - Base Case RCRA Treatment

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
BAPL	X		11	14	7	2	34	34	0
INEL	X	X	664	1369	3695	272	6000	4846	1154
LANL	X	X	555	803	2881	335	4575	2334	2240
LLNL	X		27	82	129	12	250	250	0
MOUND	X		11	14	9	2	36	36	0
RFP	X		788	2732	5187	259	8965	8965	0
SRS	X	X	399	707	1446	86	2637	2196	442
WVDP	X		11	14	9	2	36	36	0
	TOTAL		2466	5734	13364	969	22533	18698	3835
						TOTAL FTE	22,533		

Table B-19. Nonalpha MLLW Case #10 - PLCC Summary
Treatment Scenario - Base Case RCRA Treatment

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
ANLE	x		$ 7.56	$ 17.74	$ 60.70	$ 9.60	$ 95.60	$ -	$ 95.60	$ -
ANLW	x		$ 3.77	$ 2.65	$ 1.48	$ 0.48	$ 8.37	$ -	$ 8.37	$ -
BAPL	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
BNL	x		$ -	$ -	$ 3.59	$ 4.80	$ 8.38	$ -	$ 8.38	$ -
CNS	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
FEMP	x		$ 11.57	$ 36.13	$ 101.54	$ 10.20	$ 159.44	$ -	$ 159.44	$ -
GA	x		$ 7.56	$ 17.74	$ 25.86	$ 5.21	$ 56.38	$ -	$ 56.38	$ -
HANF	x		$ 74.70	$ 203.61	$ 462.36	$ 30.52	$ 771.19	$ 76.06	$ 695.13	$ -
KAPL - K	x		$ -	$ -	$ 2.11	$ 4.80	$ 6.91	$ -	$ 6.91	$ -
KAPL - S	x		$ -	$ -	$ 2.11	$ 4.80	$ 6.91	$ -	$ 6.91	$ -
KAPL - W	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
LBL	x		$ -	$ -	$ 2.11	$ 4.80	$ 6.91	$ -	$ 6.91	$ -
LERH	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
LLNL	x		$ -	$ -	$ 18.99	$ 4.80	$ 23.79	$ -	$ 23.79	$ -
MARE	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
NNS	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
NTS		x	$ 29.25	$ 46.47	$ 381.81	$ 93.78	$ 551.31	$ -	$ -	$ 551.31
ORR	x		$ 70.16	$ 204.68	$ 521.80	$ 43.49	$ 840.13	$ 17.54	$ 822.59	$ -
PAD	x		$ 7.56	$ 17.74	$ 19.15	$ 9.52	$ 53.97	$ -	$ 53.97	$ -
PANT	x		$ 7.56	$ 17.74	$ 31.92	$ 10.70	$ 67.93	$ -	$ 67.93	$ -
PEARL	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
PORTS	x		$ 77.71	$ 223.25	$ 389.32	$ 33.46	$ 723.75	$ -	$ 723.75	$ -
PUGET	x		$ -	$ -	$ 2.74	$ 4.80	$ 7.54	$ -	$ 7.54	$ -
RMI	x		$ 7.56	$ 17.74	$ 16.50	$ 8.08	$ 49.88	$ -	$ 49.88	$ -
SNLA	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
SNLL	x		$ -	$ -	$ 2.11	$ 4.80	$ 6.91	$ -	$ 6.91	$ -
SRS	x		$ 42.87	$ 115.27	$ 269.46	$ 24.85	$ 452.45	$ -	$ 452.45	$ -
	TOTAL		$ 347.83	$ 920.77	$ 2,327.48	$ 351.85	$ 3,947.92	$ 93.60	$ 3,303.01	$ 551.31
						Transportation	$ 11.33			
						TOTAL COST	$ 3,959.25			

Table B-20. Alpha MLLW Case #10 - PLCC Summary
Treatment Scenario - Base Case RCRA Treatment

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
BAPL	x		$ 1.78	$ 3.57	$ 1.12	$ 0.54	$ 7.01	$ -	$ 7.01	$ -
INEL	x		$ 90.47	$ 341.06	$ 456.72	$ 32.62	$ 920.86	$ -	$ 920.86	$ -
LANL	x		$ 57.43	$ 177.96	$ 206.18	$ 19.11	$ 460.69	$ -	$ 460.69	$ -
LLNL	x		$ 4.47	$ 21.10	$ 17.41	$ 2.90	$ 45.88	$ -	$ 45.88	$ -
MOUND	x		$ 1.78	$ 3.57	$ 1.12	$ 0.54	$ 7.01	$ -	$ 7.01	$ -
NTS		x	$ 41.94	$ 43.81	$ 310.31	$ 73.16	$ 469.22	$ -	$ -	$ 469.22
RFP	x		$ 131.97	$ 712.14	$ 914.19	$ 64.64	$ 1,822.94	$ 96.97	$ 1,725.96	$ -
SRS	x		$ 53.58	$ 155.86	$ 189.38	$ 17.87	$ 416.69	$ -	$ 416.69	$ -
WVDP	x		$ 1.78	$ 3.57	$ 1.12	$ 0.54	$ 7.01	$ -	$ 7.01	$ -
	TOTAL		$ 385.19	$ 1,462.64	$ 2,097.54	$ 211.91	$ 4,157.28	$ 96.97	$ 3,591.09	$ 469.22
						Transportation	$ 4.58			
						TOTAL COST	$ 4,161.86			

Table B-21. Nonalpha MLLW Case #10 - FTE Summary

Treatment Scenario - Base Case RCRA Treatment

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
ANLE	x		45	67	339	38	490	490	0
ANLW	x		23	10	7	2	42	42	0
BAPL	x		0	0	7	19	26	26	0
BNL	x		0	0	22	19	41	41	0
CNS	x		0	0	7	19	27	27	0
FEMP	x		68	131	618	41	859	859	0
GA	x		45	67	120	21	253	253	0
HANF	x		442	743	2,526	122	3,834	3,834	0
KAPL - K	x		0	0	13	19	32	32	0
KAPL - S	x		0	0	12	19	32	32	0
KAPL - W	x		0	0	8	19	27	27	0
LBL	x		0	0	12	19	31	31	0
LERH	x		0	0	7	19	26	26	0
LLNL	x		0	0	115	19	134	134	0
MARE	x		0	0	9	19	28	28	0
NNS	x		0	0	7	19	26	26	0
NTS		x	175	180	1,989	375	2,719	0	2,719
ORR	x		419	754	3,265	174	4,612	4,612	0
PAD	x		45	67	105	38	255	255	0
PANT	x		45	67	156	43	311	311	0
PEARL	x		0	0	7	19	26	26	0
PORTS	x		460	821	2,522	134	3,937	3,937	0
PUGET	x		0	0	17	19	36	36	0
RMI	x		45	67	78	32	223	223	0
SNLA	x		0	0	8	19	27	27	0
SNLL	x		0	0	14	19	33	33	0
SRS	x		256	426	1,761	99	2,543	2,543	0
	TOTAL		2,072	3,401	13,751	1,407	20,631	17,912	2,719
						TOTAL FTE	20,631		

Table B-22. Alpha MLLW Case #10 - FTE Summary

Treatment Scenario - Base Case RCRA Treatment

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
BAPL	x		11	14	7	2	34	34	0
INEL	x		537	1294	2907	130	4868	4868	0
LANL	x		339	674	1286	76	2375	2375	0
LLNL	x		28	82	130	12	251	251	0
MOUND	x		11	14	9	2	36	36	0
NTS		x	252	170	1720	293	2434	0	2434
RFP	x		788	2732	5190	259	8968	8968	0
SRS	x		315	592	1219	71	2197	2197	0
WVDP	x		11	14	9	2	36	36	0
	TOTAL		2291	5584	12476	848	21199	18765	2434
						TOTAL FTE	21,199		

Table B-23. Nonalpha MLLW Case #15 - PLCC Summary
Treatment Scenario - Base Case RCRA Treatment

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
ANLE	x		$ 7.56	$ 17.74	$ 60.70	$ 9.60	$ 95.60	$ -	$ 95.60	$ -
ANLW	x		$ 1.75	$ 2.65	$ 1.48	$ 0.48	$ 6.35	$ -	$ 6.35	$ -
BAPL	x		$ 1.75	$ 2.65	$ 1.48	$ 0.48	$ 6.35	$ -	$ 6.35	$ -
BNL	x		$ -	$ -	$ 3.59	$ 4.80	$ 8.38	$ -	$ 8.38	$ -
CNS	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
FEMP	x		$ 11.46	$ 36.13	$ 98.00	$ 10.20	$ 155.79	$ -	$ 155.79	$ -
GA	x		$ 7.56	$ 17.74	$ 25.86	$ 5.21	$ 56.38	$ -	$ 56.38	$ -
HANF	x	x	$ 98.27	$ 234.04	$ 661.14	$ 59.67	$ 1,053.12	$ 76.06	$ 714.50	$ 262.56
KAPL - K	x		$ -	$ -	$ 2.11	$ 4.80	$ 6.91	$ -	$ 6.91	$ -
KAPL - S	x		$ -	$ -	$ 2.11	$ 4.80	$ 6.91	$ -	$ 6.91	$ -
KAPL - W	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
LBL	x		$ -	$ -	$ 2.11	$ 4.80	$ 6.91	$ -	$ 6.91	$ -
LERH	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
LLNL	x		$ -	$ -	$ 18.99	$ 4.80	$ 23.79	$ -	$ 23.79	$ -
MARE	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
NNS	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
ORR	x	x	$ 124.76	$ 340.57	$ 1,001.09	$ 92.51	$ 1,558.94	$ 17.54	$ 1,267.28	$ 274.12
PAD	x		$ 7.56	$ 17.74	$ 20.31	$ 9.52	$ 55.13	$ -	$ 55.13	$ -
PANT	x		$ 7.56	$ 17.74	$ 31.92	$ 10.70	$ 67.93	$ -	$ 67.93	$ -
PEARL	x		$ 1.75	$ 2.65	$ 1.48	$ 0.48	$ 6.35	$ -	$ 6.35	$ -
PORTS	x		$ 18.18	$ 57.68	$ 153.22	$ 9.62	$ 238.71	$ -	$ 238.71	$ -
PUGET	x		$ -	$ -	$ 2.49	$ 4.80	$ 7.29	$ -	$ 7.29	$ -
RMI	x		$ 7.56	$ 17.74	$ 16.50	$ 8.08	$ 49.88	$ -	$ 49.88	$ -
SNLA	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
SNLL	x		$ -	$ -	$ 2.11	$ 4.80	$ 6.91	$ -	$ 6.91	$ -
SRS	x	x	$ 54.45	$ 127.00	$ 355.04	$ 100.12	$ 636.61	$ -	$ 454.02	$ 182.60
	TOTAL		$ 350.16	$ 892.09	$ 2,470.59	$ 379.04	$ 4,091.88	$ 93.60	$ 3,279.01	$ 719.27
						Transportation	$ 2.74			
						TOTAL COST	$ 4,094.62			

Table B-24. Alpha MLLW Case #15 - PLCC Summary
Treatment Scenario - Base Case RCRA Treatment

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
BAPL	x		$ 1.78	$ 3.57	$ 1.12	$ 0.54	$ 7.01	$ -	$ 7.01	$ -
INEL	x	x	$ 152.98	$ 546.13	$ 910.47	$ 110.41	$ 1,719.99	$ -	$ 1,329.72	$ 390.27
LANL	x	x	$ 34.95	$ 74.42	$ 187.14	$ 46.42	$ 342.94	$ -	$ 108.29	$ 234.64
LLNL	x		$ 4.44	$ 21.10	$ 17.28	$ 2.90	$ 45.72	$ -	$ 45.72	$ -
MOUND	x		$ 1.78	$ 3.57	$ 1.12	$ 0.54	$ 7.01	$ -	$ 7.01	$ -
RFP	x		$ 77.41	$ 468.32	$ 620.43	$ 48.74	$ 1,214.89	$ 96.97	$ 1,117.92	$ -
SRS	x	x	$ 67.66	$ 186.55	$ 249.66	$ 21.68	$ 525.55	$ -	$ 418.75	$ 106.80
WVDP	x		$ 1.78	$ 3.57	$ 1.12	$ 0.54	$ 7.01	$ -	$ 7.01	$ -
	TOTAL		$ 342.79	$ 1,307.23	$ 1,988.33	$ 231.76	$ 3,870.11	$ 96.97	$ 3,041.42	$ 731.72
						Transportation	$ 2.18			
						TOTAL COST	$ 3,872.29			

Table B-25. Nonalpha MLLW Case #15 - FTE Summary

Treatment Scenario - Base Case RCRA Treatment

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
ANLE	x		45	67	339	38	490	490	0
ANLW	x		11	10	7	2	30	30	0
BAPL	x		11	10	7	2	30	30	0
BNL	x		0	0	22	19	41	41	0
CISS			0	0	0	0	0	0	0
CNS	x		0	0	7	19	27	27	0
FEMP	x		68	131	593	41	833	833	0
GA	x		45	67	120	21	253	253	0
HANF	x	x	584	861	3,756	239	5,439	3,940	1,499
KAPL - K	x		0	0	13	19	32	32	0
KAPL - S	x		0	0	12	19	32	32	0
KAPL - W	x		0	0	8	19	27	27	0
LBL	x		0	0	12	19	31	31	0
LERH	x		0	0	7	19	26	26	0
LLNL	x		0	0	115	19	134	134	0
MARE	x		0	0	9	19	28	28	0
NNS	x		0	0	7	19	26	26	0
ORR	x	x	745	1,258	6,276	370	8,648	7,099	1,549
PAD	x		45	67	110	38	260	260	0
PANT	x		45	67	156	43	311	311	0
PEARL	x		11	10	9	2	32	32	0
PORTS	x		109	213	883	38	1,243	1,243	0
PUGET	x		0	0	15	19	35	35	0
RMI	x		45	67	78	32	223	223	0
SNLA	x		0	0	8	19	27	27	0
SNLL	x		0	0	14	19	33	33	0
SRS	x	x	326	471	2,238	400	3,435	2,549	886
	TOTAL		2,091	3,300	14,820	1,516	21,727	17,792	3,935
						TOTAL FTE	21,727		

Table B-26. Alpha MLLW Case #15 - FTE Summary

Treatment Scenario - Base Case RCRA Treatment

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
BAPL	x		11	14	7	2	34	34	0
INEL	x	x	912	2082	5874	442	9310	7163	2146
LANL	x	x	209	285	1173	186	1853	550	1303
LLNL	x		27	82	129	12	250	250	0
MOUND	x		11	14	9	2	36	36	0
RFP	x		464	1803	3207	195	5669	5669	0
SRS	x	x	399	710	1456	87	2651	2209	442
WVDP	x		11	14	9	2	36	36	0
	TOTAL		2046	5002	11865	927	19840	15948	3892
						TOTAL FTE	19,840		

Table B-27. Nonalpha MLLW Case #17 - PLCC Summary
Treatment Scenario - Base Case RCRA Treatment

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
ANLE	x		$ 7.56	$ 17.74	$ 60.70	$ 9.60	$ 95.60	$ -	$ 95.60	$ -
ANLW	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
BAPL	x		$ 1.75	$ 2.65	$ 1.48	$ 0.48	$ 6.35	$ -	$ 6.35	$ -
BNL	x		$ -	$ -	$ 3.59	$ 4.80	$ 8.38	$ -	$ 8.38	$ -
CISS			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
CNS	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
ETEC			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
FEMP	x		$ 11.57	$ 36.13	$ 99.32	$ 10.20	$ 157.22	$ -	$ 157.22	$ -
GA	x		$ 7.56	$ 17.74	$ 25.86	$ 5.21	$ 56.38	$ -	$ 56.38	$ -
HANF	x	x	$ 191.22	$ 489.74	$ 1,434.83	$ 172.55	$ 2,288.34	$ 76.06	$ 1,626.23	$ 586.05
KAPL - K	x		$ -	$ -	$ 2.11	$ 4.80	$ 6.91	$ -	$ 6.91	$ -
KAPL - S	x		$ -	$ -	$ 2.11	$ 4.80	$ 6.91	$ -	$ 6.91	$ -
KAPL - W	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
LBL	x		$ -	$ -	$ 2.11	$ 4.80	$ 6.91	$ -	$ 6.91	$ -
LERH	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
LLNL	x		$ -	$ -	$ 18.99	$ 4.80	$ 23.79	$ -	$ 23.79	$ -
MARE	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
NNS	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
ORR	x		$ 18.81	$ 64.87	$ 211.13	$ 17.93	$ 312.75	$ 17.54	$ 295.21	$ -
PAD	x		$ 7.56	$ 17.74	$ 19.99	$ 9.52	$ 54.82	$ -	$ 54.82	$ -
PANT	x		$ 7.56	$ 17.74	$ 24.30	$ 10.70	$ 60.31	$ -	$ 60.31	$ -
PEARL	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
PORTS	x		$ 18.26	$ 59.47	$ 150.93	$ 12.23	$ 240.89	$ -	$ 240.89	$ -
PUGET	x		$ 1.75	$ 2.65	$ 3.59	$ 0.48	$ 8.46	$ -	$ 8.46	$ -
RMI	x		$ 7.56	$ 17.74	$ 13.53	$ 9.52	$ 48.35	$ -	$ 48.35	$ -
SNLA	x		$ -	$ -	$ 1.48	$ 4.80	$ 6.27	$ -	$ 6.27	$ -
SNLL	x		$ -	$ -	$ 2.11	$ 4.80	$ 6.91	$ -	$ 6.91	$ -
SRS	x		$ 12.98	$ 36.73	$ 60.67	$ 7.88	$ 118.26	$ -	$ 118.26	$ -
	TOTAL		$ 294.14	$ 780.96	$ 2,149.16	$ 333.47	$ 3,557.74	$ 93.60	$ 2,878.08	$ 586.05
						Transportation	$ 9.68			
						TOTAL COST	$ 3,567.42			

Table B-28. Alpha MLLW Case #17 - PLCC Summary
Treatment Scenario - Base Case RCRA Treatment

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Disposal Total ($M)
BAPL	x		$ 1.78	$ 3.57	$ 1.12	$ 0.54	$ 7.01	$ -	$ 7.01	$ -
HANF	x	x	$ 155.50	$ 526.75	$ 952.04	$ 121.23	$ 1,755.53	$ -	$ 1,299.55	$ 455.98
INEL	x		$ 17.43	$ 74.50	$ 78.82	$ 8.65	$ 179.40	$ -	$ 179.40	$ -
LANL	x		$ 11.76	$ 49.14	$ 42.63	$ 4.96	$ 108.49	$ -	$ 108.49	$ -
LLNL	x		$ 4.44	$ 21.10	$ 17.28	$ 2.90	$ 45.72	$ -	$ 45.72	$ -
MOUND	x		$ 1.78	$ 3.57	$ 1.12	$ 0.54	$ 7.01	$ -	$ 7.01	$ -
RFP	x		$ 77.40	$ 468.31	$ 620.41	$ 48.74	$ 1,214.87	$ 96.97	$ 1,117.89	$ -
SRS	x		$ 4.75	$ 23.37	$ 19.09	$ 3.15	$ 50.36	$ -	$ 50.36	$ -
WVDP	x		$ 1.78	$ 3.57	$ 1.12	$ 0.54	$ 7.01	$ -	$ 7.01	$ -
	TOTAL		$ 276.63	$ 1,173.88	$ 1,733.64	$ 191.24	$ 3,375.38	$ 96.97	$ 2,822.43	$ 455.98
						Transportation	$ 3.90			
						TOTAL COST	$ 3,379.29			

Table B-29. Nonalpha MLLW Case #17 - FTE Summary

Treatment Scenario - Base Case RCRA Treatment

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
ANLE	x		45	67	339	38	490	490	0
ANLW	x		0	0	7	19	26	26	0
BAPL	x		11	10	7	2	30	30	0
BNL	x		0	0	22	19	41	41	0
CNS	x		0	0	7	19	27	27	0
FEMP	x		68	131	596	41	836	836	0
GA	x		45	67	120	21	253	253	0
HANF	x	x	1,141	1,824	8,195	690	11,850	8,949	2,901
KAPL - K	x		0	0	13	19	32	32	0
KAPL - S	x		0	0	12	19	32	32	0
KAPL - W	x		0	0	8	19	27	27	0
LBL	x		0	0	12	19	31	31	0
LERH	x		0	0	7	19	26	26	0
LLNL	x		0	0	115	19	134	134	0
MARE	x		0	0	9	19	28	28	0
NNS	x		0	0	7	19	26	26	0
ORR	x		112	240	1,039	72	1,463	1,463	0
PAD	x		45	67	108	38	259	259	0
PANT	x		45	67	125	43	280	280	0
PEARL	x		0	0	7	19	26	26	0
PORTS	x		109	220	873	49	1,251	1,251	0
PUGET	x		11	10	21	2	44	44	0
RMI	x		45	67	66	38	217	217	0
SNLA	x		0	0	8	19	27	27	0
SNLL	x		0	0	14	19	33	33	0
SRS	x		79	139	340	32	589	589	0
	TOTAL		1,759	2,910	12,077	1,334	18,080	15,179	2,901
						TOTAL FTE	18,080		

Table B-30. Alpha MLLW Case #17 - FTE Summary

Treatment Scenario - Base Case RCRA Treatment

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
BAPL	x		11	14	7	2	34	34	0
HANF	x	x	926	2013	6001	485	9425	7041	2384
INEL	x		104	283	511	35	932	932	0
LANL	x		70	187	274	20	551	551	0
LLNL	x		27	82	129	12	250	250	0
MOUND	x		11	14	9	2	36	36	0
RFP	x		464	1803	3207	195	5669	5669	0
SRS	x		29	91	143	13	276	276	0
WVDP	x		11	14	9	2	36	36	0
	TOTAL		1655	4499	10290	765	17209	14825	2384
						TOTAL FTE	17,209		

Table B-31. RH MLLW Case #26 - PLCC Summary
Treatment Scenario - Base Case RCRA Treatment

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Treatment Total ($M)	Disposal Total ($M)
INEL	x	x	$ 62.46	$ 258.33	$ 301.80	$ 27.47	$ 650.05	$ 519.33	$ 130.72
ORR	x	x	$ 60.86	$ 294.82	$ 291.21	$ 26.97	$ 673.84	$ 581.96	$ 91.89
SRS	x		$ 19.21	$ 35.97	$ 24.22	$ 3.20	$ 82.59	$ 82.59	$ -
	TOTAL		$ 142.52	$ 589.12	$ 617.23	$ 57.63	$ 1,406.49	$ 1,183.88	$ 222.61
						Transportation	$ -		
						TOTAL COST	$ 1,406.49		

Table B-32. RH MLLW Case #26 - FTE Summary

Treatment Scenario - Base Case RCRA Treatment

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Treatment Total (FTE)	Disposal Total (FTE)
INEL	x	x	372	987	1899	110	3367	2829	538
ORR	x	x	361	1113	1734	108	3316	2926	391
SRS	x		113	137	144	13	407	406	0
	TOTAL		846	2237	3777	231	7090	6161	929
						TOTAL FTE	7,090		

Appendix C

Transuranic Waste

Table C-1. CH TRUW Case #1 - PLCC Summary

Treatment Scenario: No Action Option

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION			
								Treatment			Storage
Site Name	Treatment Site	Storage Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Retrieval & Character. ($M)	Other ($M)	Total ($M)	Total ($M)
ANLE	x	x	$ -	$ -	$ 57.27	$ 13.82	$ 71.08	$ -	$ 59.16	$ 59.16	$ 11.93
HANF	x	x	$ -	$ -	$ 50.15	$ 17.96	$ 68.11	$ -	$ 44.12	$ 44.12	$ 23.99
INEL	x	x	$ -	$ -	$ 173.59	$ 30.35	$ 203.94	$ -	$ 166.06	$ 166.06	$ 37.88
LANL	x	x	$ -	$ -	$ 87.24	$ 22.43	$ 109.67	$ -	$ 89.80	$ 89.80	$ 19.87
LLNL	x	x	$ -	$ -	$ 72.80	$ 13.82	$ 86.62	$ -	$ 74.16	$ 74.16	$ 12.45
MOUND	x	x	$ -	$ -	$ 96.66	$ 16.68	$ 113.33	$ -	$ 99.95	$ 99.95	$ 13.39
NTS	x	x	$ -	$ -	$ 34.81	$ 13.82	$ 48.62	$ -	$ 37.74	$ 37.74	$ 10.88
ORR	x	x	$ -	$ -	$ 123.47	$ 20.91	$ 144.39	$ -	$ 131.61	$ 131.61	$ 12.78
PAD	x		$ -	$ -	$ 28.41	$ 4.00	$ 32.41	$ -	$ 32.41	$ 32.41	$ -
RFP	x	x	$ -	$ -	$ 257.19	$ 20.91	$ 278.10	$ -	$ 262.01	$ 262.01	$ 16.09
SRS	x	x	$ -	$ -	$ 144.37	$ 16.68	$ 161.05	$ -	$ 143.96	$ 143.96	$ 17.09
UOM	x		$ -	$ -	$ 28.41	$ 4.00	$ 32.41	$ -	$ 32.41	$ 32.41	$ -
WIPP	x	x	$ -	$ -	$ 37.48	$ 13.82	$ 51.29	$ -	$ 40.41	$ 40.41	$ 10.88
	TOTAL		$ -	$ -	$ 1,191.83	$ 209.20	$ 1,401.02	$ -	$ 1,213.80	$ 1,213.80	$ 187.22
						Transportation	$ -				
						TOTAL COST	$ 1,401.02				

Table C-2. CH TRUW Case #1 - FTE Summary

Treatment Scenario: No Action Option

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION			
								Treatment			Storage
Site Name	Treatment Site	Storage Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Retrieval & Character. (FTE)	Other (FTE)	Total (FTE)	Total (FTE)
ANLE	x	x	0	0	340	55	395	0	342	342	53
HANF	x	x	0	0	302	72	374	0	254	254	120
INEL	x	x	0	0	1133	121	1254	0	1069	1069	185
LANL	x	x	0	0	504	90	594	0	493	493	101
LLNL	x	x	0	0	430	55	485	0	428	428	57
MOUND	x	x	0	0	632	67	699	0	636	636	63
NTS	x	x	0	0	209	55	264	0	218	218	46
ORR	x	x	0	0	559	84	642	0	584	584	59
PORTS	x		0	0	166	16	182	0	182	182	0
RFP	x	x	0	0	1118	84	1202	0	1121	1121	80
SRS	x	x	0	0	945	67	1011	0	924	924	87
UOM	x		0	0	166	16	182	0	182	182	0
WIPP	x	x	0	0	223	55	278	0	232	232	46
	TOTAL		0	0	6726	837	7563	0	6667	6667	896
						TOTAL FTE	7563				

Table C-3. CH TRUW Case #2 - PLCC Summary

Treatment Scenario: WIPP - WAC Option

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION			
								Treatment			Storage
Site Name	Treatment Site	Storage Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Retrieval & Character. ($M)	Other ($M)	Total ($M)	Total ($M)
ANLE	x	x	$ 18.86	$ 66.37	$ 144.56	$ 21.10	$ 250.90	$ -	$ 237.66	$ 237.66	$ 13.24
HANF	x	x	$ 46.60	$ 264.71	$ 422.67	$ 315.57	$ 1,049.55	$ 583.59	$ 437.01	$ 1,020.60	$ 28.95
INEL	x	x	$ 74.45	$ 374.45	$ 657.60	$ 430.93	$ 1,537.43	$ 889.93	$ 593.93	$ 1,483.85	$ 53.58
LANL	x	x	$ 44.52	$ 216.98	$ 361.93	$ 220.61	$ 844.03	$ 441.07	$ 376.17	$ 817.24	$ 26.79
LLNL	x	x	$ 17.36	$ 63.31	$ 132.39	$ 21.44	$ 234.50	$ -	$ 220.54	$ 220.54	$ 13.96
MOUND	x	x	$ 18.69	$ 94.45	$ 135.66	$ 26.07	$ 274.86	$ 29.89	$ 232.04	$ 261.93	$ 12.94
NTS	x	x	$ 5.97	$ 27.28	$ 45.69	$ 16.89	$ 95.82	$ -	$ 84.28	$ 84.28	$ 11.54
ORR	x	x	$ 12.88	$ 61.45	$ 150.09	$ 18.10	$ 242.53	$ 27.11	$ 180.98	$ 208.09	$ 34.44
PAD	x		$ 4.51	$ 10.21	$ 28.06	$ 4.95	$ 47.72	$ -	$ 47.72	$ 47.72	$ -
RFP	x	x	$ 21.08	$ 95.12	$ 226.83	$ 33.89	$ 376.93	$ 46.09	$ 310.97	$ 357.06	$ 19.87
SRS	x	x	$ 30.03	$ 133.89	$ 251.40	$ 89.64	$ 504.96	$ -	$ 471.72	$ 471.72	$ 33.24
UOM	x		$ 3.15	$ 4.32	$ 17.20	$ 0.71	$ 25.38	$ -	$ 25.38	$ 25.38	$ -
WIPP	x		$ 6.64	$ 32.67	$ 48.66	$ 7.68	$ 95.65	$ -	$ 95.65	$ 95.65	$ -
	TOTAL		$ 304.74	$ 1,445.21	$ 2,622.74	$ 1,207.58	$ 5,580.27	$ 2,017.68	$ 3,314.05	$ 5,331.73	$ 248.54
						Transportation	$ 217.24				
						TOTAL COST	$ 5,797.51				

Table C-4. CH TRUW Case #2 - FTE Summary

Treatment Scenario: WIPP - WAC Option

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION			
								Treatment			Storage
Site Name	Treatment Site	Storage Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Retrieval & Character. (FTE)	Other (FTE)	Total (FTE)	Total (FTE)
ANLE	x	x	114	255	489	84	942	0	881	881	62
HANF	x	x	280	1048	2427	1262	5017	2712	2162	4874	143
INEL	x	x	447	1469	3131	1724	6771	4100	2413	6513	258
LANL	x	x	268	847	1818	882	3815	2019	1663	3681	133
LLNL	x	x	105	244	528	86	963	0	897	897	66
MOUND	x	x	113	360	815	104	1392	131	1201	1333	60
NTS	x	x	37	105	208	68	417	0	366	366	51
ORR	x	x	78	235	888	72	1273	117	956	1073	200
PORTS	x		28	39	102	20	188	0	188	188	0
RFP	x	x	127	363	1096	136	1722	203	1418	1621	101
SRS	x	x	181	515	1289	359	2343	696	1484	2179	163
UOM	x		20	17	94	3	134	0	134	134	0
WIPP	x		41	127	228	31	426	0	426	426	0
	TOTAL		1837	5622	13113	4830	25403	9977	14189	24167	1237
						TOTAL FTE	25403				

Table C-5. CH TRUW Case #3 - PLCC Summary

Treatment Scenario: WIPP - Reduced Gas Option

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION			
								Treatment			Storage
Site Name	Treatment Site	Storage Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Retrieval & Character. ($M)	Other ($M)	Total ($M)	Total -($M)
ANLE	x	x	$ 18.86	$ 66.37	$ 144.56	$ 21.10	$ 250.90	$ -	$ 237.66	$ 237.66	$ 13.24
HANF	x	x	$ 57.86	$ 299.08	$ 460.42	$ 328.66	$ 1,146.02	$ 583.59	$ 520.07	$ 1,103.66	$ 42.37
INEL	x	x	$ 88.92	$ 432.33	$ 722.80	$ 466.03	$ 1,710.09	$ 889.93	$ 730.04	$ 1,619.97	$ 90.12
LANL	x	x	$ 55.90	$ 256.90	$ 399.28	$ 232.64	$ 944.72	$ 441.07	$ 464.62	$ 905.69	$ 39.03
LLNL	x	x	$ 25.96	$ 76.66	$ 148.80	$ 22.78	$ 274.21	$ -	$ 258.71	$ 258.71	$ 15.50
MOUND	x	x	$ 18.69	$ 94.45	$ 135.66	$ 26.07	$ 274.86	$ 29.89	$ 232.04	$ 261.93	$ 12.94
NTS	x	x	$ 14.55	$ 44.48	$ 70.97	$ 18.57	$ 148.56	$ -	$ 135.63	$ 135.63	$ 12.94
ORR	x	x	$ 12.88	$ 61.45	$ 127.94	$ 18.10	$ 220.37	$ 27.11	$ 180.98	$ 208.09	$ 12.28
PAD	x		$ 4.51	$ 10.21	$ 28.06	$ 4.95	$ 47.72	$ -	$ 47.72	$ 47.72	$ -
RFP	x	x	$ 21.91	$ 97.74	$ 257.08	$ 44.50	$ 421.23	$ 46.09	$ 345.55	$ 391.64	$ 29.59
SRS	x	x	$ 42.08	$ 179.06	$ 296.13	$ 111.52	$ 628.80	$ -	$ 571.23	$ 571.23	$ 57.57
UOM	x		$ 10.07	$ 9.02	$ 18.90	$ 1.08	$ 39.07	$ -	$ 39.07	$ 39.07	$ -
WIPP	x	x	$ 6.64	$ 32.67	$ 49.96	$ 17.50	$ 106.76	$ -	$ 95.65	$ 95.65	$ 11.12
	TOTAL		$ 378.85	$ 1,660.42	$ 2,860.56	$ 1,313.50	$ 6,213.33	$ 2,017.68	$ 3,858.96	$ 5,876.64	$ 336.70
						Transportation	$ 153.03				
						TOTAL COST	$ 6,366.36				

Table C-6. CH TRUW Case #3 - FTE Summary

Treatment Scenario: WIPP - Reduced Gas Option

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION			
								Treatment			Storage
Site Name	Treatment Site	Storage Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Retrieval & Character. (FTE)	Other (FTE)	Total (FTE)	Total (FTE)
ANLE	x	x	114	255	489	84	942	0	881	881	62
HANF	x	x	348	1179	2690	1315	5531	2712	2614	5326	206
INEL	x	x	534	1690	3662	1864	7750	4100	3225	7325	425
LANL	x	x	336	999	2058	931	4324	2019	2115	4134	190
LLNL	x	x	156	295	626	91	1169	0	1092	1092	76
MOUND	x	x	113	360	815	104	1392	131	1201	1333	60
NTS	x	x	88	172	331	74	665	0	606	606	60
ORR	x	x	78	235	744	72	1129	117	956	1073	55
PORTS	x		28	39	102	20	188	0	188	188	0
RFP	x	x	132	373	1290	178	1973	203	1623	1826	146
SRS	x	x	253	687	1597	446	2984	696	2012	2708	276
UOM	x		61	35	100	4	201	0	201	201	0
WIPP	x	x	41	127	237	70	474	0	426	426	48
	TOTAL		2282	6446	14741	5254	28723	9977	17141	27118	1604
						TOTAL FTE	28723				

Table C-7. CH TRUW Case #4 - PLCC Summary

Treatment Scenario: WIPP - WAC Option

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION			
								Treatment			Storage
Site Name	Treatment Site	Storage Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Retrieval & Character. ($M)	Other ($M)	Total ($M)	Total ($M)
ANLE	x	x	$ 18.86	$ 66.37	$ 144.68	$ 21.10	$ 251.02	$ -	$ 237.66	$ 237.66	$ 13.36
HANF	x	x	$ 46.60	$ 264.71	$ 422.67	$ 315.57	$ 1,049.55	$ 583.59	$ 437.01	$ 1,020.60	$ 28.95
INEL	x	x	$ 74.45	$ 374.45	$ 657.60	$ 430.93	$ 1,537.43	$ 889.93	$ 593.93	$ 1,483.85	$ 53.58
LANL	x	x	$ 44.52	$ 216.98	$ 361.93	$ 220.61	$ 844.03	$ 441.07	$ 376.17	$ 817.24	$ 26.79
LLNL	x	x	$ 17.36	$ 63.31	$ 132.30	$ 21.44	$ 234.41	$ -	$ 220.54	$ 220.54	$ 13.87
MOUND	x	x	$ 18.69	$ 94.45	$ 135.59	$ 26.07	$ 274.79	$ 29.89	$ 232.04	$ 261.93	$ 12.86
NTS	x	x	$ 5.97	$ 27.28	$ 45.74	$ 16.89	$ 95.87	$ -	$ 84.28	$ 84.28	$ 11.59
ORR	x	x	$ 12.88	$ 61.45	$ 128.01	$ 18.10	$ 220.44	$ 27.11	$ 180.98	$ 208.09	$ 12.35
PAD	x		$ 4.51	$ 10.21	$ 28.06	$ 4.95	$ 47.72	$ -	$ 47.72	$ 47.72	$ -
RFP	x	x	$ 21.08	$ 95.12	$ 226.83	$ 33.89	$ 376.93	$ 46.09	$ 310.97	$ 357.06	$ 19.87
SRS	x	x	$ 30.03	$ 133.89	$ 251.40	$ 89.64	$ 504.96	$ -	$ 471.72	$ 471.72	$ 33.24
UOM	x		$ 3.15	$ 4.32	$ 17.20	$ 0.71	$ 25.38	$ -	$ 25.38	$ 25.38	$ -
WIPP	x		$ 6.64	$ 32.67	$ 48.66	$ 7.68	$ 95.65	$ -	$ 95.65	$ 95.65	$ -
	TOTAL		$ 304.74	$ 1,445.21	$ 2,600.66	$ 1,207.58	$ 5,558.19	$ 2,017.68	$ 3,314.05	$ 5,331.73	$ 226.46
						Transportation	$ 217.19				
						TOTAL COST	$ 5,775.38				

Table C-8. CH TRUW Case #4 - FTE Summary

Treatment Scenario: WIPP - WAC Option

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION			
								Treatment			Storage
Site Name	Treatment Site	Storage Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Retrieval & Character. (FTE)	Other (FTE)	Total (FTE)	Total (FTE)
ANLE	x	x	114	255	489	84	943	0	881	881	62
HANF	x	x	280	1048	2427	1262	5017	2712	2162	4874	143
INEL	x	x	447	1469	3131	1724	6771	4100	2413	6513	258
LANL	x	x	268	847	1818	882	3815	2019	1663	3681	133
LLNL	x	x	105	244	528	86	963	0	897	897	66
MOUND	x	x	113	360	815	104	1392	131	1201	1333	59
NTS	x	x	37	105	208	68	417	0	366	366	51
ORR	x	x	78	235	744	72	1129	117	956	1073	56
PORTS	x		28	39	102	20	188	0	188	188	0
RFP	x	x	127	363	1096	136	1722	203	1418	1621	101
SRS	x	x	181	515	1289	359	2343	696	1484	2179	163
UOM	x		20	17	94	3	134	0	134	134	0
WIPP	x		41	127	228	31	426	0	426	426	0
	TOTAL		1837	5622	12969	4830	25259	9977	14189	24167	1092
						TOTAL FTE	25259				

Table C-9. CH TRUW Case #5 - PLCC Summary

Treatment Scenario: WIPP Reduced Gas Option

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION			
								Treatment			Storage
Site Name	Treatment Site	Storage Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Retrieval & Character. ($M)	Other ($M)	Total ($M)	Total ($M)
ANLE	x		$ 18.06	$ 56.19	$ 136.39	$ 10.23	$ 220.87	$ -	$ 220.87	$ 220.87	$ -
HANF	x	x	$ 67.94	$ 310.94	$ 502.15	$ 336.77	$ 1,217.79	$ 583.59	$ 588.64	$ 1,172.23	$ 45.56
INEL	x	x	$ 104.31	$ 441.12	$ 758.84	$ 467.68	$ 1,771.96	$ 889.93	$ 790.77	$ 1,680.69	$ 91.26
LANL	x	x	$ 55.90	$ 256.90	$ 399.28	$ 232.64	$ 944.72	$ 441.07	$ 464.62	$ 905.69	$ 39.03
LLNL	x		$ 15.02	$ 53.62	$ 109.38	$ 10.42	$ 188.44	$ -	$ 188.44	$ 188.44	$ -
MOUND	x		$ 3.18	$ 19.45	$ 24.02	$ 3.73	$ 50.38	$ 29.89	$ 20.49	$ 50.38	$ -
NTS	x		$ -	$ -	$ 6.81	$ -	$ 6.81	$ -	$ 6.81	$ 6.81	$ -
ORR	x		$ 1.50	$ 12.93	$ 44.44	$ 2.30	$ 61.18	$ 27.11	$ 34.07	$ 61.18	$ -
PAD	x		$ 4.49	$ 10.21	$ 27.93	$ 4.95	$ 47.57	$ -	$ 47.57	$ 47.57	$ -
RFP	x	x	$ 21.91	$ 97.74	$ 257.08	$ 44.50	$ 421.23	$ 46.09	$ 345.55	$ 391.64	$ 29.59
SRS	x	x	$ 68.23	$ 246.41	$ 421.32	$ 119.99	$ 855.95	$ -	$ 794.99	$ 794.99	$ 60.97
UOM	x		$ -	$ -	$ 3.41	$ -	$ 3.41	$ -	$ 3.41	$ 3.41	$ -
WIPP	x		$ 6.64	$ 32.67	$ 48.66	$ 7.68	$ 95.65	$ -	$ 95.65	$ 95.65	$ -
	TOTAL		$ 367.19	$ 1,538.17	$ 2,739.71	$ 1,240.90	$ 5,885.97	$ 2,017.68	$ 3,601.87	$ 5,619.55	$ 266.42
						Transportation	$ 160.20				
						TOTAL COST	$ 6,046.17				

Table C-10. CH TRUW Case #5 - FTE Summary

Treatment Scenario: WIPP Reduced Gas Option

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION			
								Treatment			Storage
Site Name	Treatment Site	Storage Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Retrieval & Character. (FTE)	Other (FTE)	Total (FTE)	Total (FTE)
ANLE	x		109	217	439	41	806	0	806	806	0
HANF	x	x	406	1224	2908	1347	5885	2712	2952	5664	221
INEL	x	x	623	1723	3851	1871	8068	4100	3538	7638	431
LANL	x	x	336	999	2058	931	4324	2019	2115	4134	190
LLNL	x		91	207	400	42	740	0	740	740	0
MOUND	x		19	70	134	15	239	131	108	239	0
NTS	x		0	0	28	0	28	0	28	28	0
ORR	x		9	47	193	9	259	117	142	259	0
PORTS	x		28	39	101	20	187	0	187	187	0
RFP	x	x	132	373	1290	178	1973	203	1623	1826	146
SRS	x	x	407	943	2394	480	4224	696	3236	3932	292
UOM	x		0	0	14	0	14	0	14	14	0
WIPP	x		41	127	228	31	426	0	426	426	0
	TOTAL		2200	5969	14039	4964	27172	9977	15915	25893	1279
						TOTAL FTE	27172				

Table C-11. CH TRUW Case #6 - PLCC Summary

Treatment Scenario: RCRA (LDR) Option

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION			
								Treatment			Storage
Site Name	Treatment Site	Storage Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Retrieval & Character. ($M)	Other ($M)	Total ($M)	Total ($M)
ANLE	x		$ 23.92	$ 117.89	$ 174.22	$ 14.03	$ 330.06	$ -	$ 330.06	$ 330.06	$ -
HANF	x	x	$ 77.52	$ 371.05	$ 517.46	$ 341.46	$ 1,307.48	$ 583.59	$ 678.53	$ 1,262.12	$ 45.37
INEL	x	x	$ 124.11	$ 540.11	$ 857.01	$ 471.46	$ 1,992.69	$ 889.93	$ 1,013.18	$ 1,903.11	$ 89.59
LANL	x	x	$ 55.94	$ 245.98	$ 474.36	$ 237.58	$ 1,013.86	$ 441.07	$ 535.65	$ 976.73	$ 37.14
LLNL	x		$ 26.62	$ 106.56	$ 144.90	$ 13.18	$ 291.26	$ -	$ 291.26	$ 291.26	$ -
MOUND	x		$ 3.18	$ 19.45	$ 24.02	$ 3.73	$ 50.38	$ 29.89	$ 20.49	$ 50.38	$ -
NTS	x		$ -	$ -	$ 6.81	$ -	$ 6.81	$ -	$ 6.81	$ 6.81	$ -
ORR	x		$ 1.50	$ 12.93	$ 44.44	$ 2.30	$ 61.18	$ 27.11	$ 34.07	$ 61.18	$ -
PAD	x		$ 4.95	$ 18.84	$ 29.96	$ 5.45	$ 59.19	$ -	$ 59.19	$ 59.19	$ -
RFP	x	x	$ 33.95	$ 145.17	$ 302.70	$ 49.41	$ 531.23	$ 46.09	$ 456.59	$ 502.68	$ 28.55
SRS	x	x	$ 87.35	$ 327.54	$ 509.21	$ 100.17	$ 1,024.27	$ -	$ 996.51	$ 996.51	$ 27.75
UOM	x		$ -	$ -	$ 3.41	$ -	$ 3.41	$ -	$ 3.41	$ 3.41	$ -
WIPP	x		$ 16.17	$ 49.53	$ 74.38	$ 8.47	$ 148.55	$ -	$ 148.55	$ 148.55	$ -
	TOTAL		$ 455.20	$ 1,955.05	$ 3,162.88	$ 1,247.24	$ 6,820.37	$ 2,017.68	$ 4,574.30	$ 6,591.98	$ 228.40
						Transportation	$ 131.06				
						TOTAL COST	$ 6,951.43				

Table C-12. CH TRUW Case #6 - FTE Summary

Treatment Scenario: RCRA (LDR) Option

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION			
								Treatment			Storage
Site Name	Treatment Site	Storage Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Retrieval & Character. (FTE)	Other (FTE)	Total (FTE)	Total (FTE)
ANLE	x		144	447	635	56	1282	0	1282	1282	0
HANF	x	x	462	1457	3042	1366	6326	2712	3394	6106	220
INEL	x	x	740	2096	4284	1886	9005	4100	4483	8582	423
LANL	x	x	336	956	2443	950	4686	2019	2486	4504	181
LLNL	x		158	404	580	53	1195	0	1195	1195	0
MOUND	x		19	70	134	15	239	131	108	239	0
NTS	x		0	0	28	0	28	0	28	28	0
ORR	x		9	47	193	9	259	117	142	259	0
PORTS	x		30	71	108	22	231	0	231	231	0
RFP	x	x	202	553	1553	198	2506	203	2162	2365	141
SRS	x	x	519	1254	2554	401	4728	696	3894	4590	138
UOM	x		0	0	14	0	14	0	14	14	0
WIPP	x		96	189	327	34	646	0	646	646	0
	TOTAL		2716	7544	15897	4989	31146	9977	20066	30043	1103
						TOTAL FTE	31146				

Table C-13. CH TRUW Case #7 - PLCC Summary

Treatment Scenario: WIPP - Reduced Gas Option

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION			
								Treatment			Storage
Site Name	Treatment Site	Storage Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Retrieval & Character. ($M)	Other ($M)	Total ($M)	Total ($M)
ANLE	x		$ 18.06	$ 56.19	$ 136.39	$ 10.23	$ 220.87	$ -	$ 220.87	$ 220.87	$ -
HANF	x	x	$ 67.94	$ 310.94	$ 502.15	$ 336.77	$ 1,217.79	$ 583.59	$ 588.64	$ 1,172.23	$ 45.56
INEL	x	x	$ 134.89	$ 557.68	$ 1,014.52	$ 480.76	$ 2,187.85	$ 889.93	$ 1,197.44	$ 2,087.37	$ 100.48
LANL	x		$ 19.37	$ 136.40	$ 141.99	$ 187.74	$ 485.50	$ 441.07	$ 44.43	$ 485.50	$ -
LLNL	x		$ 15.02	$ 53.62	$ 109.38	$ 10.42	$ 188.44	$ -	$ 188.44	$ 188.44	$ -
MOUND	x		$ 3.18	$ 19.45	$ 24.02	$ 3.73	$ 50.38	$ 29.89	$ 20.49	$ 50.38	$ -
NTS	x		$ -	$ -	$ 6.81	$ -	$ 6.81	$ -	$ 6.81	$ 6.81	$ -
ORR	x		$ 1.50	$ 12.93	$ 44.44	$ 2.30	$ 61.18	$ 27.11	$ 34.07	$ 61.18	$ -
PAD	x		$ 4.49	$ 10.21	$ 27.93	$ 4.95	$ 47.57	$ -	$ 47.57	$ 47.57	$ -
RFP	x		$ 8.37	$ 34.13	$ 64.56	$ 10.69	$ 117.76	$ 46.09	$ 71.67	$ 117.76	$ -
SRS	x	x	$ 68.23	$ 246.41	$ 421.32	$ 119.99	$ 855.95	$ -	$ 794.99	$ 794.99	$ 60.97
UOM	x		$ -	$ -	$ 3.41	$ -	$ 3.41	$ -	$ 3.41	$ 3.41	$ -
WIPP	x		$ 6.64	$ 32.67	$ 48.66	$ 7.68	$ 95.65	$ -	$ 95.65	$ 95.65	$ -
	TOTAL		$ 347.69	$ 1,470.62	$ 2,545.59	$ 1,175.27	$ 5,539.16	$ 2,017.68	$ 3,314.47	$ 5,332.15	$ 207.01
						Transportation	$ 202.61				
						TOTAL COST	$ 5,741.77				

Table C-14. CH TRUW Case #7 - FTE Summary

Treatment Scenario: WIPP - Reduced Gas Option

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION			
								Treatment			Storage
Site Name	Treatment Site	Storage Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Retrieval & Character. (FTE)	Other (FTE)	Total (FTE)	Total (FTE)
ANLE	x		109	217	439	41	806	0	806	806	0
HANF	x	x	406	1224	2908	1347	5885	2712	2952	5664	221
INEL	x	x	807	2166	5137	1923	10033	4100	5449	9548	484
LANL	x		116	533	855	751	2255	2019	237	2255	0
LLNL	x		91	207	400	42	740	0	740	740	0
MOUND	x		19	70	134	15	239	131	108	239	0
NTS	x		0	0	28	0	28	0	28	28	0
ORR	x		9	47	193	9	259	117	142	259	0
PORTS	x		28	39	101	20	187	0	187	187	0
RFP	x		51	125	314	43	532	203	329	532	0
SRS	x	x	407	943	2394	480	4224	696	3236	3932	292
UOM	x		0	0	14	0	14	0	14	14	0
WIPP	x		41	127	228	31	426	0	426	426	0
	TOTAL		2083	5698	13146	4701	25627	9977	14654	24631	997
						TOTAL FTE	25627				

Table C-15. CH TRUW Case #8 - PLCC Summary

Treatment Scenario: RCRA (LDR) Option

Site Name	Treatment Site	Storage Site	COST BY WORK BREAKDOWN STRUCTURE ELEMENT				Site Total	COST BY FUNCTION			
								Treatment			Storage
			1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	($M)	Retrieval & Character. ($M)	Other ($M)	Total ($M)	Total ($M)
ANLE	x		$ 23.92	$ 117.89	$ 174.22	$ 14.03	$ 330.06	$ 26.17	$ 303.88	$ 330.06	$ -
HANF	x	x	$ 77.52	$ 371.05	$ 517.46	$ 341.46	$ 1,307.48	$ 99.12	$ 1,162.99	$ 1,262.12	$ 45.37
INEL	x	x	$ 156.10	$ 671.16	$ 1,121.32	$ 486.55	$ 2,435.14	$ 291.40	$ 2,044.24	$ 2,335.64	$ 99.50
LANL	x		$ 19.37	$ 136.40	$ 141.99	$ 187.74	$ 485.50	$ -	$ 485.50	$ 485.50	$ -
LLNL	x		$ 26.62	$ 106.56	$ 144.90	$ 13.18	$ 291.26	$ 72.03	$ 219.23	$ 291.26	$ -
MOUND	x		$ 3.18	$ 19.45	$ 24.02	$ 3.73	$ 50.38	$ -	$ 50.38	$ 50.38	$ -
NTS	x		$ -	$ -	$ 6.81	$ -	$ 6.81	$ -	$ 6.81	$ 6.81	$ -
ORR	x		$ 1.50	$ 12.93	$ 44.44	$ 2.30	$ 61.18	$ -	$ 61.18	$ 61.18	$ -
PAD	x		$ 4.95	$ 18.84	$ 29.96	$ 5.45	$ 59.19	$ 10.81	$ 48.38	$ 59.19	$ -
RFP	x		$ 8.38	$ 34.13	$ 68.38	$ 15.70	$ 126.59	$ 10.81	$ 115.78	$ 126.59	$ -
SRS	x	x	$ 87.35	$ 327.54	$ 509.21	$ 100.17	$ 1,024.27	$ -	$ 996.51	$ 996.51	$ 27.75
UOM	x		$ -	$ -	$ 3.41	$ -	$ 3.41	$ -	$ 3.41	$ 3.41	$ -
WIPP	x		$ 16.17	$ 49.53	$ 74.38	$ 8.47	$ 148.55	$ -	$ 148.55	$ 148.55	$ -
	TOTAL		$ 425.05	$ 1,865.47	$ 2,860.50	$ 1,178.79	$ 6,329.81	$ 510.35	$ 5,646.83	$ 6,157.19	$ 172.62
						Transportation	$ 170.16				
						TOTAL COST	$ 6,499.97				

Table C-16. CH TRUW Case #8 - FTE Summary

Treatment Scenario: RCRA (LDR) Option

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION			
								Treatment			Storage
Site Name	Treatment Site	Storage Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Retrieval & Character. (FTE)	Other (FTE)	Total (FTE)	Total (FTE)
ANLE	x		144	447	635	56	1282	0	1282	1282	0
HANF	x	x	462	1457	3042	1366	6326	2712	3394	6106	220
INEL	x	x	932	2594	5617	1946	11089	4100	6511	10611	478
LANL	x		116	533	855	751	2255	2019	237	2255	0
LLNL	x		158	404	580	53	1195	0	1195	1195	0
MOUND	x		19	70	134	15	239	131	108	239	0
NTS	x		0	0	28	0	28	0	28	28	0
ORR	x		9	47	193	9	259	117	142	259	0
PORTS	x		30	71	108	22	231	0	231	231	0
RFP	x		51	125	334	63	572	203	369	572	0
SRS	x	x	519	1254	2554	401	4728	696	3894	4590	138
UOM	x		0	0	14	0	14	0	14	14	0
WIPP	x		96	189	327	34	646	0	646	646	0
	TOTAL		2536	7191	14423	4715	28866	9977	18053	28030	836
						TOTAL FTE	28866				

Table C-17. CH TRUW Case #9 - PLCC Summary

Treatment Scenario: RCRA (LDR) Option

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION			
								Treatment			Storage
Site Name	Treatment Site	Storage Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Retrieval & Character. ($M)	Other ($M)	Total ($M)	Total ($M)
ANLE	x		$ 23.92	$ 117.89	$ 174.22	$ 14.03	$ 330.06	$ -	$ 330.06	$ 330.06	$ -
HANF	x		$ 17.70	$ 137.56	$ 193.79	$ 280.23	$ 629.28	$ 583.59	$ 45.69	$ 629.28	$ -
INEL	x		$ 32.12	$ 227.81	$ 304.66	$ 375.94	$ 940.52	$ 889.93	$ 50.59	$ 940.52	$ -
LANL	x		$ 19.37	$ 136.40	$ 141.99	$ 187.74	$ 485.50	$ 441.07	$ 44.43	$ 485.50	$ -
LLNL	x		$ 26.62	$ 106.56	$ 144.90	$ 13.18	$ 291.26	$ -	$ 291.26	$ 291.26	$ -
MOUND	x		$ 3.18	$ 19.45	$ 24.02	$ 3.73	$ 50.38	$ 29.89	$ 20.49	$ 50.38	$ -
NTS	x		$ -	$ -	$ 6.81	$ -	$ 6.81	$ -	$ 6.81	$ 6.81	$ -
ORR	x		$ 1.50	$ 12.93	$ 44.44	$ 2.30	$ 61.18	$ 27.11	$ 34.07	$ 61.18	$ -
PAD	x		$ 4.95	$ 18.84	$ 29.96	$ 5.45	$ 59.19	$ -	$ 59.19	$ 59.19	$ -
RFP	x		$ 8.38	$ 34.13	$ 68.38	$ 15.70	$ 126.59	$ 46.09	$ 80.50	$ 126.59	$ -
SRS	x		$ 7.87	$ 51.10	$ 71.40	$ 55.07	$ 185.45	$ -	$ 185.45	$ 185.45	$ -
UOM	x		$ -	$ -	$ 3.41	$ -	$ 3.41	$ -	$ 3.41	$ 3.41	$ -
WIPP	x		$ 185.18	$ 831.55	$ 1,243.24	$ 86.27	$ 2,346.24	$ -	$ 2,346.24	$ 2,346.24	$ -
	TOTAL		$ 330.78	$ 1,694.21	$ 2,451.21	$ 1,039.64	$ 5,515.85	$ 2,017.68	$ 3,498.17	$ 5,515.85	$ -
						Transportation	$ 188.43				
						TOTAL COST	$ 5,704.28				

Table C-18. CH TRUW Case #9 - FTE Summary

Treatment Scenario: RCRA (LDR) Option

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION			
								Treatment			Storage
Site Name	Treatment Site	Storage Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Retrieval & Character. (FTE)	Other (FTE)	Total (FTE)	Total (FTE)
ANLE	x		144	447	635	56	1282	0	1282	1282	0
HANF	x		106	559	1170	1121	2956	2712	244	2956	0
INEL	x		193	905	1771	1504	4372	4100	273	4372	0
LANL	x		116	533	855	751	2255	2019	237	2255	0
LLNL	x		158	404	580	53	1195	0	1195	1195	0
MOUND	x		19	70	134	15	239	131	108	239	0
NTS	x		0	0	28	0	28	0	28	28	0
ORR	x		9	47	193	9	259	117	142	259	0
PORTS	x		30	71	108	22	231	0	231	231	0
RFP	x		51	125	334	63	572	203	369	572	0
SRS	x		47	195	420	220	883	696	188	883	0
UOM	x		0	0	14	0	14	0	14	14	0
WIPP	x		1106	3188	6541	345	11180	0	11180	11180	0
	TOTAL		1981	6545	12785	4159	25469	9977	15492	25469	0
						TOTAL FTE	25469				

Table C-19. RH TRUW Case #10 - PLCC Summary

Treatment Scenario: No Action Option

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION			
								Treatment			Storage
Site Name	Treatment Site	Storage Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Retrieval & Character. ($M)	Other ($M)	Total ($M)	Total ($M)
ANLE	x		$ -	$ -	$ 28.41	$ 4.00	$ 32.41	$ -	$ 32.41	$ 32.41	$ -
HANF	x	x	$ -	$ -	$ 201.73	$ 17.28	$ 219.01	$ -	$ 190.64	$ 190.64	$ 28.36
INEL	x	x	$ -	$ -	$ 32.21	$ 9.36	$ 41.57	$ -	$ 32.41	$ 32.41	$ 9.16
ORR	x	x	$ -	$ -	$ 83.04	$ 15.60	$ 98.64	$ -	$ 84.91	$ 84.91	$ 13.73
	TOTAL		$ -	$ -	$ 345.38	$ 46.24	$ 391.62	$ -	$ 340.36	$ 340.36	$ 51.25
						Transportation	$ -				
						Total Cost	**$ 391.62**				

Table C-20. RH TRUW Case #10 - FTE Summary

Treatment Scenario: No Action Option

Site Name	Treatment Site	Storage Site	FTE BY WORK BREAKDOWN STRUCTURE ELEMENT				Site Total	FTE BY FUNCTION			
								Treatment			Storage
			1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	(FTE)	Retrieval & Character. (FTE)	Other (FTE)	Total (FTE)	Total (FTE)
ANLE	x		0	0	170	16	186	0	186	186	0
HANF	x	x	0	0	1251	69	1320	0	1192	1192	128
INEL	x	x	0	0	185	37	222	0	187	187	35
ORR	x	x	0	0	288	62	350	0	292	292	58
	TOTAL		0	0	1893	185	2078	0	1857	1857	221
						Total FTE	2078				

Table C-21. RH TRUW Case #11 - PLCC Summary

Treatment Scenario: WIPP - WAC Option

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION			
								Treatment			Storage
Site Name	Treatment Site	Storage Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Retrieval & Character. ($M)	Other ($M)	Total ($M)	Total ($M)
ANLE	x	x	$ 5.62	$ 22.42	$ 38.54	$ 12.22	$ 78.81	$ -	$ 70.15	$ 70.15	$ 8.66
HANF	x	x	$ 63.85	$ 138.11	$ 562.70	$ 30.77	$ 795.43	$ -	$ 750.63	$ 750.63	$ 44.80
INEL	x	x	$ 8.62	$ 44.91	$ 71.55	$ 35.52	$ 160.60	$ 39.46	$ 111.01	$ 150.47	$ 10.13
ORR	x	x	$ 20.39	$ 89.91	$ 157.74	$ 62.89	$ 330.93	$ 81.62	$ 233.87	$ 315.49	$ 15.44
	TOTAL		$ 104.05	$ 315.59	$ 865.84	$ 154.74	$ 1,440.22	$ 133.57	$ 1,227.62	$ 1,361.19	$ 79.03
						Transportation	$ 336.75				
						Total Cost	**$ 1,776.97**				

Table C-22. RH TRUW Case #11 - FTE Summary

Treatment Scenario: WIPP - WAC Option

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION			
								Treatment			Storage
Site Name	Treatment Site	Storage Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Retrieval & Character. (FTE)	Other (FTE)	Total (FTE)	Total (FTE)
ANLE	x	x	34	86	136	49	305	0	273	273	33
HANF	x	x	384	523	1343	123	2373	0	2174	2174	199
INEL	x	x	52	176	337	142	707	184	483	667	40
ORR	x	x	123	349	755	252	1479	386	1026	1412	66
	TOTAL		628	1211	2694	619	5152	627	4186	4813	339
						Total FTE	5152				

Table C-23. RH TRUW Case #12 - PLCC Summary

Treatment Scenario: WIPP Reduced Gas Option

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION			
								Treatment			Storage
Site Name	Treatment Site	Storage Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Retrieval & Character. ($M)	Other ($M)	Total ($M)	Total ($M)
ANLE	x		$ -	$ -	$ 3.41	$ -	$ 3.41	$ -	$ 3.41	$ 3.41	$ -
HANF	x	x	$ 63.85	$ 138.11	$ 562.70	$ 30.77	$ 795.43	$ -	$ 750.63	$ 750.63	$ 44.80
INEL	x	x	$ 16.09	$ 53.45	$ 81.81	$ 36.61	$ 187.95	$ 39.46	$ 136.98	$ 176.44	$ 11.51
ORR	x	x	$ 43.35	$ 107.55	$ 202.67	$ 65.35	$ 418.91	$ 81.62	$ 318.51	$ 400.13	$ 18.78
	TOTAL		$ 136.14	$ 327.87	$ 892.85	$ 151.99	$ 1,508.86	$ 133.57	$ 1,292.07	$ 1,425.64	$ 83.22
						Transportation	$ 336.75				
						Total Cost	**$ 1,845.61**				

Table C-24. RH TRUW Case #12 - FTE Summary

Treatment Scenario: WIPP Reduced Gas Option

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION			
								Treatment			Storage
Site Name	Treatment Site	Storage Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Retrieval & Character. (FTE)	Other (FTE)	Total (FTE)	Total (FTE)
ANLE	x		0	0	14	0	14	0	14	14	0
HANF	x	x	384	523	1325	123	2354	0	2155	2155	199
INEL	x	x	97	209	389	146	841	184	610	794	47
ORR	x	x	257	417	976	261	1911	386	1443	1829	82
	TOTAL		816	1259	2856	608	5540	627	4554	5181	359
						Total FTE	5540				

Table C-25. RH TRUW Case #13 - PLCC Summary

Treatment Scenario: RCRA (LDR) Option

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION			
								Treatment			Storage
Site Name	Treatment Site	Storage Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Retrieval & Character. ($M)	Other ($M)	Total ($M)	Total ($M)
ANLE	x		$ -	$ -	$ 3.41	$ -	$ 3.41	$ -	$ 3.41	$ 3.41	$ -
HANF	x	x	$ 77.23	$ 261.88	$ 655.55	$ 38.71	$ 1,033.37	$ -	$ 985.91	$ 985.91	$ 47.46
INEL	x	x	$ 25.55	$ 77.24	$ 100.69	$ 37.46	$ 240.93	$ 39.46	$ 191.35	$ 230.81	$ 10.13
ORR	x	x	$ 61.95	$ 194.34	$ 289.93	$ 69.24	$ 615.47	$ 81.62	$ 519.69	$ 601.31	$ 14.16
	TOTAL		$ 177.89	$ 568.05	$ 1,093.20	$ 165.03	$ 2,004.17	$ 133.57	$ 1,790.72	$ 1,924.29	$ 79.88
						Transportation	$ 310.80				
						Total Cost	**$ 2,314.98**				

Table C-26. RH TRUW Case #13 - FTE Summary

Treatment Scenario: RCRA (LDR) Option

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION			
								Treatment			Storage
Site Name	Treatment Site	Storage Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Retrieval & Character. (FTE)	Other (FTE)	Total (FTE)	Total (FTE)
ANLE	x		0	0	14	0	14	0	14	14	0
HANF	x	x	464	989	1772	155	3380	0	3170	3170	210
INEL	x	x	152	298	469	150	1068	184	844	1028	40
ORR	x	x	367	744	1318	277	2706	386	2260	2646	60
	TOTAL		1063	2164	3727	660	7613	627	6645	7272	341
						Total FTE	7613				

Table C-27. RH TRUW Case #14 - PLCC Summary

Treatment Scenario: WIPP - Reduced Gas Option

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION			
								Treatment			Storage
Site Name	Treatment Site	Storage Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Retrieval & Character. ($M)	Other ($M)	Total ($M)	Total ($M)
ANLE	x		$ -	$ -	$ 3.41	$ -	$ 3.41	$ -	$ 3.41	$ 3.41	$ -
HANF	x	x	$ 87.88	$ 168.88	$ 613.33	$ 34.00	$ 904.09	$ -	$ 857.03	$ 857.03	$ 47.06
INEL	x		$ 1.14	$ 9.12	$ 18.28	$ 21.14	$ 49.68	$ 39.46	$ 10.22	$ 49.68	$ -
ORR	x	x	$ 43.35	$ 107.55	$ 202.67	$ 65.35	$ 418.91	$ 81.62	$ 318.51	$ 400.13	$ 18.78
	TOTAL		$ 132.68	$ 288.59	$ 843.18	$ 127.53	$ 1,391.98	$ 133.57	$ 1,192.57	$ 1,326.14	$ 65.84
						Transportation	$ 349.39				
						Total Cost	**$ 1,741.37**				

Table C-28. RH TRUW Case #14 - FTE Summary

Treatment Scenario: WIPP - Reduced Gas Option

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION			
								Treatment			Storage
Site Name	Treatment Site	Storage Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Retrieval & Character. (FTE)	Other (FTE)	Total (FTE)	Total (FTE)
ANLE	x		0	0	14	0	14	0	14	14	0
HANF	x	x	525	641	1617	136	2918	0	2710	2710	209
INEL	x		7	38	98	85	226	184	42	226	0
ORR	x	x	257	417	984	261	1919	386	1451	1837	82
	TOTAL		791	1108	2741	510	5149	627	4231	4858	291
						Total FTE	**5149**				

Table C-29. RH TRUW Case #15 - PLCC Summary

Treatment Scenario: RCRA (LDR) Option

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION			
								Treatment			Storage
Site Name	Treatment Site	Storage Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Retrieval & Character. ($M)	Other ($M)	Total ($M)	Total ($M)
ANLE	x		$ -	$ -	$ 3.41	$ -	$ 3.41	$ -	$ 3.41	$ 3.41	$ -
HANF	x	x	$ 109.86	$ 307.73	$ 723.55	$ 42.58	$ 1,183.72	$ -	$ 1,134.50	$ 1,134.50	$ 49.22
INEL	x		$ 1.14	$ 9.12	$ 18.28	$ 21.14	$ 49.68	$ 39.46	$ 10.22	$ 49.68	$ -
ORR	x	x	$ 61.95	$ 194.34	$ 289.93	$ 69.24	$ 615.47	$ 81.62	$ 519.69	$ 601.31	$ 14.16
	TOTAL		$ 173.26	$ 514.23	$ 1,040.67	$ 140.01	$ 1,868.18	$ 133.57	$ 1,671.22	$ 1,804.79	$ 63.38
						Transportation	$ 321.96				
						Total Cost	**$ 2,190.14**				

Table C-30. RH TRUW Case #15 - FTE Summary

Treatment Scenario: RCRA (LDR) Option

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION			
								Treatment			Storage
Site Name	Treatment Site	Storage Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Retrieval & Character. (FTE)	Other (FTE)	Total (FTE)	Total (FTE)
ANLE	x		0	0	14	0	14	0	14	14	0
HANF	x	x	654	1164	2146	170	4135	0	3917	3917	218
INEL	x		7	38	98	85	226	184	42	226	0
ORR	x	x	367	744	1325	277	2713	386	2266	2653	60
	TOTAL		1030	1958	3611	560	7159	627	6254	6881	278
						Total FTE	7159				

Appendix D

Hazardous Waste

Table D-1. Hazardous Waste Case #2 - PLCC Summary

Treatment Scenario - Centralized

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($K)	2.0 Construction ($K)	3.0 Operations & Maintenance ($K)	4.0 Decontamination & Decommissioning ($K)	Site Total ($K)	In-house Treatment ($K)	In-house Disposal ($K)	Commercial Treat & Dispose ($K)
HANF			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
INEL	x	x	$ 9,916.0	$ 39,360.0	$ 84,023.0	$ 3,290.0	$ 136,589.0	$ 127,760.0	$ 3,374.0	$ 5,456.0
LANL			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
ORR	x	x	$ 8,425.0	$ 35,339.0	$ 88,245.0	$ 2,624.0	$ 134,633.0	$ 109,824.0	$ 2,633.0	$ 22,175.0
SRS			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	TOTAL		$ 18,341.0	$ 74,699.0	$ 172,268.0	$ 5,914.0	$ 271,222.0	$ 237,584.0	$ 6,007.0	$ 27,631.0
						Transportation	$ 706.0			
						TOTAL COST	**$ 271,928.0**			

Table D-2. Hazardous Waste Case #2 - FTE Summary

Treatment Scenario - Centralized

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	In-house Treatment (FTE)	In-house Disposal (FTE)
HANF			0	0	0	0	0	0	0
INEL	x	x	60	136	579	13	788	764	24
LANL			0	0	0	0	0	0	0
ORR	x	x	51	122	492	10	675	657	18
SRS			0	0	0	0	0	0	0
	TOTAL		111	258	1,071	23	1,463	1,421	42
						TOTAL FTE	1,463		

Table D-3. Hazardous Waste Case #3 - PLCC Summary

Treatment Scenario - Regional

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($K)	2.0 Construction ($K)	3.0 Operations & Maintenance ($K)	4.0 Decontamination & Decommissioning ($K)	Site Total ($K)	In-house Treatment ($K)	In-house Disposal ($K)	Commercial Treat & Dispose ($K)
HANF	x	x	$ 4,529.0	$ 21,206.0	$ 42,617.0	$ 1,325.0	$ 69,677.0	$ 59,953.0	$ 1,397.0	$ 8,328.0
INEL	x	x	$ 1,749.0	$ 8,844.0	$ 14,118.0	$ 558.0	$ 25,269.0	$ 22,626.0	$ 648.0	$ 1,995.0
LANL	x	x	$ 4,286.0	$ 19,507.0	$ 40,544.0	$ 1,276.0	$ 65,613.0	$ 56,178.0	$ 1,397.0	$ 8,038.0
ORR	x	x	$ 4,966.0	$ 23,437.0	$ 66,907.0	$ 1,504.0	$ 96,814.0	$ 66,006.0	$ 1,583.0	$ 29,225.0
SRS	x	x	$ 2,163.0	$ 10,130.0	$ 18,552.0	$ 651.0	$ 31,496.0	$ 27,759.0	$ 747.0	$ 2,989.0
	TOTAL		$ 17,693.0	$ 83,124.0	$ 182,738.0	$ 5,314.0	$ 288,869.0	$ 232,522.0	$ 5,772.0	$ 50,575.0
						Transportation	$ 516.0			
						TOTAL COST	$ 289,385.0			

Table D-4. Hazardous Waste Case #3 - FTE Summary

Treatment Scenario - Regional

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	In-house Treatment (FTE)	In-house Disposal (FTE)
HANF	x	x	28	73	256	5	362	353	10
INEL	x	x	11	30	90	2	133	130	4
LANL	x	x	27	67	243	5	342	331	10
ORR	x	x	31	81	282	6	400	388	11
SRS	x	x	14	35	114	3	166	161	5
	TOTAL		111	286	985	21	1,403	1,363	40
						TOTAL FTE	1,403		

Table D-5. Hazardous Waste Case #4 - PLCC Summary

Treatment Scenario - Decentralized

			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($K)	2.0 Construction ($K)	3.0 Operations & Maintenance ($K)	4.0 Decontamination & Decommissioning ($K)	Site Total ($K)	In-house Treatment ($K)	In-house Disposal ($K)	Commercial Treat & Dispose ($K)
HANF			$ -	$ -	$ 5,970.0	$ -	$ 5,970.0	$ -	$ -	$ 5,970.0
INEL			$ -	$ -	$ 3,815.0	$ -	$ 3,815.0	$ -	$ -	$ 3,815.0
LANL	x	x	$ 1,676.0	$ 8,844.0	$ 14,400.0	$ 558.0	$ 25,478.0	$ 21,890.0	$ 648.0	$ 2,940.0
ORR	x	x	$ 2,116.0	$ 9,618.0	$ 18,063.0	$ 686.0	$ 30,483.0	$ 26,842.0	$ 844.0	$ 2,797.0
SRS	x	x	$ 2,116.0	$ 9,618.0	$ 18,063.0	$ 686.0	$ 30,483.0	$ 26,842.0	$ 844.0	$ 2,797.0
	TOTAL		$ 5,908.0	$ 28,080.0	$ 60,311.0	$ 1,930.0	$ 96,229.0	$ 75,574.0	$ 2,336.0	$ 18,319.0
						Transportation	$ 427.0			
						TOTAL COST	**$ 96,656.0**			

Table D-6. Hazardous Waste Case #4 - FTE Summary

Treatment Scenario - Decentralized

			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	In-house Treatment (FTE)	In-house Disposal (FTE)
HANF			0	0	0	0	0	0	0
INEL			0	0	0	0	0	0	0
LANL	x	x	11	30	86	2	129	125	4
ORR	x	x	14	33	109	3	159	156	6
SRS	x	x	14	33	109	3	159	152	6
	TOTAL		39	96	304	8	447	433	16
						TOTAL FTE	447		

Appendix E

Supplemental Cost-Estimating Methods

Appendix E

Supplemental Cost-Estimating Methods

E-1. INTRODUCTION

For most alternatives/cases, costs/manpower and resource data were computed using the methodology described in this report. However, life-cycle estimates for additional low-level waste (LLW) and hazardous waste (HW) and all high-level waste (HLW) alternatives were made using different approaches. These approaches and the resulting cost estimates are described in this appendix. The computations for the additional LLW and HW alternatives were made by extrapolating/interpolating data from cases estimated using the Waste Management Facility Cost Information (WMFCI) methods. The supplemental methods were used in LLW Cases 5, 7, 12, and 14 for cost/manpower and in Cases 1, 2, 4, 5, 7, 12, 14, and 14a for resource data; in HW Case 1 for cost/manpower and Cases 1 and 2 for resource data. For certain data points, exact matches did not exist; in such instances, data were scaled, using waste processing throughput proportions, from the nearest data point computed using the WMFCI method. These computations are summarized in Section E-2 and E-3. Resource consumption data estimates are discussed in (DOE 1995).

Where modifications to the originally computed data were required because of changes in costing assumptions, a similar "exact selection, or scaling from closest data point" method was used.

In the case of HLW, cost and manpower estimates for canister storage and transportation were abstracted from the many cost studies performed for vitrification of HLW at the Hanford Site, Savannah River Site, West Valley Demonstration Project, and Idaho National Engineering Laboratory. A summary of these findings is found in Section E-4.

E-2. LOW-LEVEL WASTE SUPPLEMENTAL COST AND FULL-TIME EQUIVALENT ESTIMATING METHODOLOGY

The following methodology was applied to cases not costed by Lockheed Idaho Technologies Company (LITCO)—Cases 5, 7, 12 and 14. These cases were costed using a methodology that either copied site cost estimates for the new cases from identical site cost estimates from cases computed by LITCO, or scaled costs for new facility requirements at the module level from facilities previously costed by LITCO.

Facility requirements were compared by the waste processing throughput rates.

After the computations were made, adjustments were made to the disposal costs for Cases 5 and 7, as a result of corrections being made to feeder Cases 6 and 8, computed by LITCO. The below discussion summarizes the rationale for treatment costs, the reason for the adjustment of disposal costs, a summary of the computation, and the resulting values used.

Case 5. Case 5 was computed using the treatment for Case 6—an identical configuration. The rules for disposal call for two site disposal—Savannah River Site (SRS) in the East and Hanford in the

Case 5. Case 5 was computed using the treatment for Case 6—an identical configuration. The rules for disposal call for two site disposal—Savannah River Site (SRS) in the East and Hanford in the West. The waste throughput requirements at Hanford are the same as the waste throughput in the initially computed Nevada Test Site (NTS) for Case 6—except that waste packaged at Hanford for shipment to NTS is not required. The NTS throughput of 775.8 cubic feet per hour is made-up of two components—waste shipped from Hanford (408 cubic feet per hour) and waste shipped from other sites. The waste shipped from Hanford is reduced by the quantity of packaging (10 percent of the waste) to give an onsite throughput for Hanford of 371 cubic feet per hour; the adjusted throughput for Hanford is 738.8 cubic feet per hour. All waste being disposed at Hanford passes through disposal administration and disposal at the rate of 367 cubic feet per hour. LLW received is disposed in shallow land disposal at the rate of 367 cubic feet per hour. Costs were obtained by scaling disposal administration and disposal receiving results from Case 6 data; above ground disposal and shallow land disposal were scaled from Case 21 data.

The program life-cycle costs for Hanford disposal were $380 million for disposal administration, $530 million for disposal receiving, and $914 million for shallow land disposal.

Case 7. Case 7 was computed using the treatment for Case 8—an identical configuration. The rules for disposal call for a single disposal site—Hanford. The waste throughput requirements at Hanford are the same as the waste throughput in the initially computed NTS for Case 8—except that waste packaged at Hanford for shipment to NTS is not required. The NTS throughput of 1,204 cubic feet per hour is made-up of two components—waste shipped from Hanford and waste shipped from other sites. The waste shipped from Hanford is reduced by the quantity of packaging 37 cubic feet per hour to give an onsite throughput for Hanford of 1,167 cubic feet per hour. All waste being disposed at Hanford passes through disposal administration and disposal at the rate of 1,167 cubic feet per hour. LLW received is disposed in shallow land disposal at the rate of 1,167 cubic feet per hour. Costs were obtained by scaling disposal administration and disposal receiving results from Case 21 Hanford data.

The program life-cycle costs for Hanford disposal were $802 million for disposal administration, $1,108 million for disposal receiving, and $1,915 million for shallow land disposal.

Case 12. Case 7 treatment was estimated using the treatment computed for Case 14a, an identical situation. Case 7 disposal was estimated using the disposal computed for Case 19, an identical situation.

Case 14. Case 14 treatment was estimated using the treatment computed for Case 14a, an identical situation. Case 14 disposal was estimated using the disposal computed for Case 21, an identical situation.

The cost and full-time equivalent tables are attached as E-1 through E-12.

Table E-1. Nonalpha LLW Case #5 - PLCC Summary
Treatment Scenario - Minimum Treatment

				COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION			
Site Name	Treatment Site	Storage Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Storage Total ($M)	Disposal Total ($M)
AMES	x			$ 2.12	$ 3.73	$ 4.55	$ 4.80	$ 15.19	$ -	$ 15.19	$ -	$ -
ANLE	x			$ 9.05	$ 30.08	$ 60.96	$ 5.74	$ 105.83	$ -	$ 105.83	$ -	$ -
ANLW	x			$ 21.28	$ 57.02	$ 164.37	$ 16.79	$ 259.46	$ -	$ 259.46	$ -	$ -
BAPL	x			$ 15.71	$ 42.96	$ 118.32	$ 9.76	$ 186.74	$ -	$ 186.74	$ -	$ -
FEMP												
FNAL	x			$ 9.04	$ 32.55	$ 60.27	$ 11.98	$ 113.84	$ -	$ 113.84	$ -	$ -
HANF	x			-	-	-	-	$ 5,346.00	$ -	$ 681.69	$ -	$ 4,664.00
INEL	x			$ 18.65	$ 52.00	$ 142.79	$ 12.79	$ 226.23	$ -	$ 226.23	$ -	$ -
ITRI	x			$ 3.80	$ 14.16	$ 17.29	$ 4.80	$ 40.05	$ -	$ 40.05	$ -	$ -
KAPL-S	x			$ 18.91	$ 52.88	$ 144.91	$ 13.28	$ 229.98	$ -	$ 229.98	$ -	$ -
KCP	x			$ 1.76	$ 2.46	$ 1.83	$ 4.80	$ 10.65	$ -	$ 10.65	$ -	$ -
LANL	x			$ 22.64	$ 64.80	$ 175.91	$ 23.84	$ 287.19	$ -	$ 287.19	$ -	$ -
LBL	x			$ 6.87	$ 25.12	$ 42.67	$ 11.87	$ 86.53	$ -	$ 86.53	$ -	$ -
LLNL	x			$ 13.24	$ 44.66	$ 95.49	$ 10.95	$ 164.34	$ -	$ 164.34	$ -	$ -
MOUND	x			$ 26.03	$ 74.62	$ 204.21	$ 17.14	$ 322.00	$ -	$ 322.00	$ -	$ -
NRF	x			$ 17.38	$ 47.67	$ 132.29	$ 10.38	$ 207.71	$ -	$ 207.71	$ -	$ -
NTS			x	$ -	$ -	-	$ -	$ -	$ -	$ -	$ -	$ -
ORR	x			$ 77.67	$ 250.05	$ 629.83	$ 43.67	$ 1,001.22	$ -	$ 1,001.22	$ -	$ -
PAD	x			$ 22.65	$ 61.79	$ 181.87	$ 20.73	$ 287.04	$ -	$ 287.04	$ -	$ -
PANT	x			$ 25.61	$ 77.01	$ 199.85	$ 30.15	$ 332.63	$ -	$ 332.63	$ -	$ -
PORTS												
PIN	x			$ 1.97	$ 3.73	$ 3.26	$ 4.80	$ 13.77	$ -	$ 13.77	$ -	$ -
PPPL	x			$ 2.97	$ 5.43	$ 11.92	$ 10.81	$ 31.13	$ -	$ 31.13	$ -	$ -
RFP	x			$ 18.47	$ 53.62	$ 140.80	$ 14.94	$ 227.83	$ -	$ 227.83	$ -	$ -
RMI	x			$ 26.92	$ 75.60	$ 212.07	$ 19.81	$ 334.39	$ -	$ 334.39	$ -	$ -
SLAC	x			$ 8.55	$ 30.17	$ 56.45	$ 10.88	$ 106.05	$ -	$ 106.05	$ -	$ -
SNLA	x			$ 5.95	$ 22.57	$ 34.70	$ 4.82	$ 68.04	$ -	$ 68.04	$ -	$ -
SNLL	x			$ 4.25	$ 13.12	$ 21.62	$ 10.81	$ 49.80	$ -	$ 49.80	$ -	$ -
SRS	x		x	$ 438.93	$ 2,681.59	$ 3,925.62	$ 209.76	$ 7,255.90	$ 626.00	$ 904.19	$ -	$ 5,725.72
WVDP												
	TOTAL			$ 1,087.97	$ 4,331.30	$ 9,378.26	$ 744.87	$ 17,079.00	$ 626.00	$ 6,293.55	$ -	$ 8,622.84
							Transportation	$ 550.27				
							TOTAL COST	$ 18,736.00				

Table E-2. Nonalpha LLW Case #5 - FTE Summary
Treatment Scenario - Minimum Treatment

				FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION			
Site Name	Treatment Site	Storage Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Special Total (FTE)	Treatment Total (FTE)	Storage Total (FTE)	Disposal Total (FTE)
AMES	x			13	13	28	19	74	0	74	0	0
ANLE	x			55	112	320	23	510	0	510	0	0
ANLW	x			128	217	917	67	1,329	0	1,329	0	0
BAPL	x			95	162	500	39	796	0	796	0	0
FEMP												
FNAL	x			55	121	368	48	592	0	592	0	0
HANF	x			315	689	2,316	153	3,473	0	3,473	0	0
INEL	x			113	197	690	51	1,051	0	1,051	0	0
ITRI	x			24	52	105	19	199	0	199	0	0
KAPL-S	x			114	201	703	53	1,071	0	1,071	0	0
KCP	x			11	9	10	19	49	0	49	0	0
LANL	x			137	248	895	95	1,375	0	1,375	0	0
LBL	x			42	93	272	47	455	0	455	0	0
LLNL	x			80	166	612	44	902	0	902	0	0
MOUND	x			157	282	1,059	69	1,567	0	1,567	0	0
NRF	x			105	179	628	42	954	0	954	0	0
NTS			x	1,291	1,451	11,493	666	14,902	0	0	0	14,902
ORR	x			467	1,004	3,509	175	5,155	0	5,155	0	0
PAD	x			137	232	942	83	1,393	0	1,393	0	0
PANT	x			154	297	1,045	121	1,617	0	1,617	0	0
PORTS												
PIN	x			13	13	20	19	65	0	65	0	0
PPPL	x			19	20	78	43	160	0	160	0	0
RFP	x			112	201	706	60	1,078	0	1,078	0	0
RMI	x			162	286	1,152	79	1,679	0	1,679	0	0
SLAC	x			52	112	337	44	544	0	544	0	0
SNLA	x			36	84	206	19	346	0	346	0	0
SNLL	x			26	48	137	43	254	0	254	0	0
SRS	x		x	2,634	11,380	16,511	839	31,364	0	4,739	0	26,625
WVDP												
	TOTAL			6,545	17,870	45,560	2,979	72,954	0	31,428	0	41,526
							TOTAL FTE	72,954				

Table E-3. Nonalpha LLW Case #7 - PLCC Summary
Treatment Scenario - Minimum Treatment

				COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION			
Site Name	Treatment Site	Storage Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Storage Total ($M)	Disposal Total ($M)
AMES	x			$ 2.12	$ 3.73	$ 4.55	$ 4.80	$ 15.19	$ -	$ 15.19	$ -	$ -
ANLE	x			$ 9.05	$ 30.08	$ 60.96	$ 5.74	$ 105.83	$ -	$ 105.83	$ -	$ -
ANLW	x			$ 21.28	$ 57.02	$ 164.37	$ 16.79	$ 259.46	$ -	$ 259.46	$ -	$ -
BAPL	x			$ 15.71	$ 42.96	$ 118.32	$ 9.76	$ 186.74	$ -	$ 186.74	$ -	$ -
FEMP												
FNAL	x			$ 9.04	$ 32.55	$ 60.27	$ 11.98	$ 113.84	$ -	$ 113.84	$ -	$ -
HANF	x			-	-	-	-	$ 6,781.00	$ -	$ 681.69	$ -	$ 6,099.00
INEL	x			$ 18.65	$ 52.00	$ 142.79	$ 12.79	$ 226.23	$ -	$ 226.23	$ -	$ -
ITRI	x			$ 3.80	$ 14.16	$ 17.29	$ 4.80	$ 40.05	$ -	$ 40.05	$ -	$ -
KAPL-S	x			$ 18.91	$ 52.86	$ 144.91	$ 13.28	$ 229.98	$ -	$ 229.98	$ -	$ -
KCP	x			$ 1.76	$ 2.46	$ 1.63	$ 4.80	$ 10.65	$ -	$ 10.65	$ -	$ -
LANL	x			$ 22.64	$ 64.80	$ 175.91	$ 23.84	$ 287.19	$ -	$ 287.19	$ -	$ -
LBL	x			$ 6.87	$ 25.12	$ 42.67	$ 11.87	$ 86.53	$ -	$ 86.53	$ -	$ -
LLNL	x			$ 13.24	$ 44.68	$ 95.49	$ 10.95	$ 164.34	$ -	$ 164.34	$ -	$ -
MOUND	x			$ 26.03	$ 74.82	$ 204.21	$ 17.14	$ 322.00	$ -	$ 322.00	$ -	$ -
NRF	x			$ 17.38	$ 47.67	$ 132.29	$ 10.38	$ 207.71	$ -	$ 207.71	$ -	$ -
NTS			x	-	-	-	-	-	$ -	$ -	$ -	-
ORR	x			$ 77.67	$ 250.05	$ 629.83	$ 43.67	$ 1,001.22	$ -	$ 1,001.22	$ -	$ -
PAD	x			$ 22.65	$ 61.79	$ 181.87	$ 20.73	$ 287.04	$ -	$ 287.04	$ -	$ -
PANT	x			$ 25.61	$ 77.01	$ 199.85	$ 30.15	$ 332.63	$ -	$ 332.63	$ -	$ -
PORTS												
PIN	x			$ 1.97	$ 3.73	$ 3.26	$ 4.80	$ 13.77	$ -	$ 13.77	$ -	$ -
PPPL	x			$ 2.97	$ 5.43	$ 11.92	$ 10.81	$ 31.13	$ -	$ 31.13	$ -	$ -
RFP	x			$ 18.47	$ 53.62	$ 140.80	$ 14.94	$ 227.83	$ -	$ 227.83	$ -	$ -
RMI	x			$ 26.92	$ 75.60	$ 212.07	$ 19.81	$ 334.39	$ -	$ 334.39	$ -	$ -
SLAC	x			$ 8.55	$ 30.17	$ 56.45	$ 10.88	$ 106.05	$ -	$ 106.05	$ -	$ -
SNLA	x			$ 5.95	$ 22.57	$ 34.70	$ 4.82	$ 68.04	$ -	$ 68.04	$ -	$ -
SNLL	x			$ 4.25	$ 13.12	$ 21.62	$ 10.81	$ 49.80	$ -	$ 49.80	$ -	$ -
SRS	x			$ 78.77	$ 320.79	$ 1,248.16	$ 44.20	$ 1,691.93	$ 626.00	$ 1,065.93	$ -	$ -
WVDP												
	TOTAL			$ 883.71	$ 2,279.28	$ 7,965.04	$ 579.32	$ 13,180.00	$ 626.00	$ 6,455.29	$ -	$ 4,626.05
							Transportation	$ 651.00				
							TOTAL COST	$ 13,831.00				

Table E-4. Nonalpha LLW Case #7 - FTE Summary
Treatment Scenario - Minimum Treatment

				FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION			
Site Name	Treatment Site	Storage Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Special Total (FTE)	Treatment Total (FTE)	Storage Total (FTE)	Disposal Total (FTE)
AMES	x			13	13	28	19	74	0	74	0	0
ANLE	x			55	112	320	23	510	0	510	0	0
ANLW	x			128	217	917	67	1,329	0	1,329	0	0
BAPL	x			95	162	500	39	796	0	796	0	0
FEMP												
FNAL	x			55	121	368	48	592	0	592	0	0
HANF	x			315	689	2,316	153	3,473	0	3,473	0	0
INEL	x			113	197	690	51	1,051	0	1,051	0	0
ITRI	x			24	52	105	19	199	0	199	0	0
KAPL-S	x			114	201	703	53	1,071	0	1,071	0	0
KCP	x			11	9	10	19	49	0	49	0	0
LANL	x			137	248	895	95	1,375	0	1,375	0	0
LBL	x			42	93	272	47	455	0	455	0	0
LLNL	x			80	166	612	44	902	0	902	0	0
MOUND	x			157	282	1,059	69	1,567	0	1,567	0	0
NRF	x			105	179	628	42	954	0	954	0	0
NTS			x	2,227	2,901	17,803	666	23,597	0	0	0	23,597
ORR	x			467	1,004	3,509	175	5,155	0	5,155	0	0
PAD	x			137	232	842	83	1,393	0	1,393	0	0
PANT	x			154	297	1,045	121	1,617	0	1,617	0	0
PORTS												
PIN	x			13	13	20	19	65	0	65	0	0
PPPL	x			19	20	78	43	160	0	160	0	0
RFP	x			112	201	706	60	1,078	0	1,078	0	0
RMI	x			162	286	1,152	79	1,679	0	1,679	0	0
SLAC	x			52	112	337	44	544	0	544	0	0
SNLA	x			36	84	206	19	346	0	346	0	0
SNLL	x			26	48	137	43	254	0	254	0	0
SRS	x			473	1,281	3,607	177	5,538	0	5,538	0	0
WVDP												
	TOTAL			5,320	9,221	38,966	2,317	55,824	0	32,227	0	23,597
							TOTAL FTE	55,824				

Table E-5. Nonalpha LLW Case #12 - PLCC Summary
Treatment Scenario - Volume Reduction at Regional Treatment Site

				COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION			
Site Name	Treatment Site	Storage Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Storage Total ($M)	Disposal Total ($M)
AMES	x			$ 2.12	$ 3.73	$ 4.55	$ 4.80	$ 15.19	$ -	$ 15.19	$ -	$ -
ANLE	x			$ 9.05	$ 30.08	$ 60.96	$ 5.74	$ 105.83	$ -	$ 105.83	$ -	$ -
ANLW	x			$ 19.82	$ 51.45	$ 152.53	$ 16.78	$ 240.59	$ -	$ 240.59	$ -	$ -
BAPL	x			$ 14.31	$ 38.75	$ 106.65	$ 6.12	$ 165.84	$ -	$ 165.84	$ -	$ -
FEMP												
FNAL	x			$ 6.07	$ 19.90	$ 38.43	$ 11.95	$ 74.35	$ -	$ 74.35	$ -	$ -
HANF	x			-	-	-	-	$ 4,825.00	$ -	$ 1,269.10	$ -	$ 3,556.00
INEL	x			$ 67.89	$ 148.51	$ 600.64	$ 55.38	$ 872.41	$ -	$ 872.41	$ -	$ -
ITRI	x			$ 3.76	$ 14.16	$ 16.93	$ 4.80	$ 39.65	$ -	$ 39.65	$ -	$ -
KAPL-S	x			$ 14.89	$ 40.25	$ 111.51	$ 5.92	$ 172.56	$ -	$ 172.56	$ -	$ -
KCP	x			$ 1.76	$ 2.48	$ 1.63	$ 4.80	$ 10.65	$ -	$ 10.65	$ -	$ -
LANL	x			-	-	-	-	$ 2,270.00	$ -	$ 1,721.03	$ -	$ 549.00
LBL	x			$ 5.69	$ 19.99	$ 33.25	$ 11.87	$ 70.80	$ -	$ 70.80	$ -	$ -
LLNL	x			$ 12.94	$ 44.50	$ 92.74	$ 10.81	$ 160.99	$ -	$ 160.99	$ -	$ -
MOUND	x			$ 26.00	$ 74.55	$ 204.01	$ 17.08	$ 321.63	$ -	$ 321.63	$ -	$ -
NRF												
NTS			x	-	-	-	-	$ 208.00	$ -	$ -	$ -	$ 208.00
ORR	x			-	-	-	-	$ 5,133.00	$ -	$ 3,850.15	$ -	$ 1,283.00
PAD	x			$ 21.74	$ 59.84	$ 174.05	$ 20.15	$ 275.78	$ -	$ 275.78	$ -	$ -
PANT	x			$ 18.30	$ 54.60	$ 139.00	$ 14.32	$ 226.22	$ -	$ 226.22	$ -	$ -
PORTS	x			$ 98.00	$ 204.44	$ 609.62	$ 60.44	$ 972.50	$ -	$ 972.50	$ -	$ -
PIN	x			$ 1.80	$ 2.52	$ 1.99	$ 1.94	$ 8.25	$ -	$ 8.25	$ -	$ -
PPPL	x			$ 1.73	$ 2.46	$ 1.32	$ 4.80	$ 10.31	$ -	$ 10.31	$ -	$ -
RFP	x			$ 15.41	$ 48.93	$ 114.07	$ 15.19	$ 193.60	$ -	$ 193.60	$ -	$ -
RMI	x			$ 25.79	$ 74.12	$ 202.18	$ 19.69	$ 321.78	$ -	$ 321.78	$ -	$ -
SLAC	x			$ 8.55	$ 30.17	$ 56.45	$ 10.88	$ 106.05	$ -	$ 106.05	$ -	$ -
SNLA	x			$ 5.54	$ 21.24	$ 31.29	$ 4.82	$ 62.88	$ -	$ 62.88	$ -	$ -
SNLL	x			$ 2.99	$ 10.16	$ 10.87	$ 4.80	$ 28.81	$ -	$ 28.81	$ -	$ -
SRS	x			-	-	-	-	$ 5,305.00	$ 626.00	$ 1,272.36	$ -	$ 3,412.00
WVDP												
	TOTAL			$ 1,439.96	$ 4,424.91	$ 12,487.39	$ 850.93	$ 23,357.00	$ 626.00	$ 12,569.31	$ -	$ 6,007.87
							Transportation	$ 224.00				
							TOTAL COST	$ 23,581.00				

Table E-6. Nonalpha LLW Case #12 - PLCC Summary
Treatment Scenario - Volume Reduction at Regional Treatment Site

				COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION			
Site Name	Treatment Site	Storage Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Storage Total ($M)	Disposal Total ($M)
HANF												
INEL												
MOUND												
NTS												
RFP	x			$ 51.87	$ 175.77	$ 247.22	$ 21.54	$ 496.40	$ -	$ 496.40	$ -	$ -
	TOTAL			$ 51.87	$ 175.77	$ 247.22	$ 21.54	$ 496.40	$ -	$ 496.40	$ -	$ -
							Transportation	$ -				
							TOTAL COST	$ 496.40				

Table E-7. Nonalpha LLW Case #12 - FTE Summary
Treatment Scenario - Volume Reduction at Regional Treatment Site

				FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION			
Site Name	Treatment Site	Storage Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Special Total (FTE)	Treatment Total (FTE)	Storage Total (FTE)	Disposal Total (FTE)
AMES	x			13	13	28	19	74	0	74	0	0
ANLE	x			55	112	320	23	510	0	510	0	0
ANLW	x			120	196	846	67	1,229	0	1,229	0	0
BAPL	x			87	144	419	24	674	0	674	0	0
FEMP												
FNAL	x			37	75	217	48	378	0	378	0	0
HANF	x			702	1,003	5,175	206	7,086	0	7,086	0	0
INEL	x			404	569	3,591	222	4,776	0	4,776	0	0
ITRI	x			23	52	102	19	197	0	197	0	0
KAPL-S	x			90	149	477	24	740	0	740	0	0
KCP	x			11	9	10	19	49	0	49	0	0
LANL	x			915	1,414	6,847	296	9,472	0	9,472	0	0
LBL	x			35	75	213	47	371	0	371	0	0
LLNL	x			78	165	594	43	881	0	881	0	0
MOUND	x			157	282	1,058	68	1,565	0	1,565	0	0
NRF												
NTS			x	2,381	7,949	17,322	1,205	28,856	0	0	0	28,856
ORR	x			1,633	2,824	17,048	220	21,725	0	21,725	0	0
PAD	x			131	225	889	81	1,325	0	1,325	0	0
PANT	x			111	204	628	57	999	0	999	0	0
PORTS	x			584	784	3,828	242	5,438	0	5,438	0	0
PIN	x			11	9	12	8	40	0	40	0	0
PPPL	x			11	9	8	19	47	0	47	0	0
RFP	x			93	184	653	61	991	0	991	0	0
RMI	x			155	280	1,085	79	1,600	0	1,600	0	0
SLAC	x			52	112	337	44	544	0	544	0	0
SNLA	x			34	79	185	19	317	0	317	0	0
SNLL	x			19	37	66	19	141	0	141	0	0
SRS	x			694	1,179	4,685	225	6,782	0	6,782	0	0
WVDP												
	TOTAL			8,037	18,135	66,631	3,404	96,806	0	67,950	0	28,856
							TOTAL FTE	96,806				

Table E-8. Nonalpha LLW Case #12 - FTE Summary
Treatment Scenario - Volume Reduction at Regional Treatment Site

				FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION			
Site Name	Treatment Site	Storage Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Special Total (FTE)	Treatment Total (FTE)	Storage Total (FTE)	Disposal Total (FTE)
HANF												
INEL												
MOUND												
NTS												
RFP	x			309	668	1,590	86	2,654	0	2,654	0	0
	TOTAL			309	668	1,590	86	2,654	0	2,654	0	0
							TOTAL FTE	2,654				

Table E-9. Nonalpha LLW Case #14 - PLCC Summary
Treatment Scenario - Volume Reduction at Regional Treatment Site

				COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION			
Site Name	Treatment Site	Storage Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Storage Total ($M)	Disposal Total ($M)
AMES	x			$ 2.12	$ 3.73	$ 4.55	$ 4.80	$ 15.19	$ -	$ 15.19	$ -	$ -
ANLE	x			$ 9.05	$ 30.08	$ 60.98	$ 5.74	$ 105.83	$ -	$ 105.83	$ -	$ -
ANLW	x			$ 19.82	$ 51.45	$ 152.53	$ 16.78	$ 240.59	$ -	$ 240.59	$ -	$ -
BAPL	x			$ 14.31	$ 38.75	$ 106.65	$ 6.12	$ 165.84	$ -	$ 165.84	$ -	$ -
FEMP												
FNAL	x			$ 6.07	$ 19.90	$ 36.43	$ 11.95	$ 74.35	$ -	$ 74.35	$ -	$ -
HANF	x			-	-	-	-	$ 7,215.00	$ -	$ 1,269.10	$ -	$ 5,946.00
INEL	x			$ 67.89	$ 148.51	$ 600.64	$ 55.38	$ 872.41	$ -	$ 872.41	$ -	$ -
ITRI	x			$ 3.76	$ 14.16	$ 16.93	$ 4.80	$ 39.65	$ -	$ 39.65	$ -	$ -
KAPL-S	x			$ 14.89	$ 40.25	$ 111.51	$ 5.92	$ 172.56	$ -	$ 172.56	$ -	$ -
KCP	x			$ 1.76	$ 2.46	$ 1.63	$ 4.80	$ 10.65	$ -	$ 10.65	$ -	$ -
LANL	x			$ 153.06	$ 360.97	$ 1,133.11	$ 73.89	$ 1,721.03	$ -	$ 1,721.03	$ -	$ -
LBL	x			$ 5.69	$ 19.99	$ 33.25	$ 11.87	$ 70.80	$ -	$ 70.80	$ -	$ -
LLNL	x			$ 12.94	$ 44.50	$ 92.74	$ 10.81	$ 160.99	$ -	$ 160.99	$ -	$ -
MOUND	x			$ 26.00	$ 74.55	$ 204.01	$ 17.08	$ 321.63	$ -	$ 321.63	$ -	$ -
NRF												
NTS			x	-	-	-	-	$ -	$ -	$ -	$ -	$ -
ORR	x			$ 272.71	$ 662.61	$ 2,859.85	$ 54.98	$ 3,850.15	$ -	$ 3,850.15	$ -	$ -
PAD	x			$ 21.74	$ 59.84	$ 174.05	$ 20.15	$ 275.78	$ -	$ 275.78	$ -	$ -
PANT	x			$ 18.30	$ 54.60	$ 139.00	$ 14.32	$ 226.22	$ -	$ 226.22	$ -	$ -
PORTS	x			$ 98.00	$ 204.44	$ 609.62	$ 60.44	$ 972.50	$ -	$ 972.50	$ -	$ -
PIN	x			$ 1.80	$ 2.52	$ 1.99	$ 1.94	$ 8.25	$ -	$ 8.25	$ -	$ -
PPPL	x			$ 1.73	$ 2.46	$ 1.32	$ 4.80	$ 10.31	$ -	$ 10.31	$ -	$ -
RFP	x			$ 15.41	$ 48.93	$ 114.07	$ 15.19	$ 193.60	$ -	$ 193.60	$ -	$ -
RMI	x			$ 25.79	$ 74.12	$ 202.18	$ 19.69	$ 321.78	$ -	$ 321.78	$ -	$ -
SLAC	x			$ 8.55	$ 30.17	$ 56.45	$ 10.88	$ 106.05	$ -	$ 106.05	$ -	$ -
SNLA	x			$ 5.54	$ 21.24	$ 31.29	$ 4.82	$ 62.88	$ -	$ 62.88	$ -	$ -
SNLL	x			$ 2.99	$ 10.16	$ 10.87	$ 4.80	$ 28.81	$ -	$ 28.81	$ -	$ -
SRS	x			$ 116.10	$ 298.84	$ 1,427.26	$ 56.17	$ 1,898.36	$ 626.00	$ 1,272.36	$ -	$ -
WVDP												
	TOTAL			$ 1,439.96	$ 4,424.91	$ 12,487.39	$ 850.93	$ 19,465.00	$ 626.00	$ 12,569.31	$ -	$ 6,007.87
							Transportation	$ 2,338.00				
							TOTAL COST	$ 21,803.00				

Table E-10. Nonalpha LLW Case #14 - PLCC Summary
Treatment Scenario - Volume Reduction at Regional Treatment Site

				COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION			
Site Name	Treatment Site	Storage Site	Disposal Site	1.0 Pre-Operations ($M)	2.0 Construction ($M)	3.0 Operations & Maintenance ($M)	4.0 Decontamination & Decommissioning ($M)	Site Total ($M)	Special Total ($M)	Treatment Total ($M)	Storage Total ($M)	Disposal Total ($M)
HANF												
INEL												
MOUND												
NTS												
RFP	x			$ 51.87	$ 175.77	$ 247.22	$ 21.54	$ 496.40	$ -	$ 496.40	$ -	$ -
	TOTAL			$ 51.87	$ 175.77	$ 247.22	$ 21.54	$ 496.40	$ -	$ 496.40	$ -	$ -
							Transportation	$ -				
							TOTAL COST	$ 496.40				

Table E-11. Nonalpha LLW Case #14 - FTE Summary
Treatment Scenario - Volume Reduction at Regional Treatment Site

				FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION			
Site Name	Treatment Site	Storage Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Special Total (FTE)	Treatment Total (FTE)	Storage Total (FTE)	Disposal Total (FTE)
AMES	x			13	13	28	19	74	0	74	0	0
ANLE	x			55	112	320	23	510	0	510	0	0
ANLW	x			120	196	846	67	1,229	0	1,229	0	0
BAPL	x			87	144	419	24	674	0	674	0	0
FEMP												
FNAL	x			37	75	217	48	378	0	378	0	0
HANF	x			702	1,003	5,175	206	7,086	0	7,086	0	0
INEL	x			404	569	3,581	222	4,776	0	4,776	0	0
ITRI	x			23	52	102	19	197	0	197	0	0
KAPL-S	x			90	149	477	24	740	0	740	0	0
KCP	x			11	9	10	19	49	0	49	0	0
LANL	x			915	1,414	6,847	296	9,472	0	9,472	0	0
LBL	x			35	75	213	47	371	0	371	0	0
LLNL	x			78	165	594	43	881	0	881	0	0
MOUND	x			157	282	1,058	68	1,565	0	1,565	0	0
NRF												
NTS			x	2,381	7,949	17,322	1,205	28,856	0	0	0	28,856
ORR	x			1,633	2,624	17,048	220	21,725	0	21,725	0	0
PAD	x			131	225	889	81	1,325	0	1,325	0	0
PANT	x			111	204	628	57	999	0	999	0	0
PORTS	x			584	784	3,828	242	5,438	0	5,438	0	0
PIN	x			11	9	12	8	40	0	40	0	0
PPPL	x			11	9	8	19	47	0	47	0	0
RFP	x			93	184	653	61	991	0	991	0	0
RMI	x			155	280	1,085	79	1,600	0	1,600	0	0
SLAC	x			52	112	337	44	544	0	544	0	0
SNLA	x			34	79	185	19	317	0	317	0	0
SNLL	x			19	37	66	19	141	0	141	0	0
SRS	x			694	1,179	4,685	225	6,782	0	6,782	0	0
WVDP												
	TOTAL			8,637	18,135	66,631	3,404	96,806	0	67,950	0	28,856
							TOTAL FTE	96,806				

Table E-12. Nonalpha LLW Case #14 - FTE Summary
Treatment Scenario - Volume Reduction at Regional Treatment Site

				FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION			
Site Name	Treatment Site	Storage Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	Special Total (FTE)	Treatment Total (FTE)	Storage Total (FTE)	Disposal Total (FTE)
HANF												
INEL												
MOUND												
NTS												
RFP	x			309	668	1,590	86	2,654	0	2,654	0	0
	TOTAL			309	668	1,590	86	2,654	0	2,654	0	0
							TOTAL FTE	2,654				

E-3. HAZARDOUS WASTE SUPPLEMENTAL COST AND FULL-TIME EQUIVALENT ESTIMATING METHODOLOGY

The following methodology was applied to cases unable to be costed by LITCO—Case 1 (No Action). This case was costed using a methodology that compared the waste inventories for the No Action and Decentralized Alternatives, as reported in Argonne National Laboratory (1995).

Most sites in the No Action Alternative required no change in cost since waste inventories remained the same as the Decentralized Alternative; this was true for Argonne National Laboratory-East, Fermi, Hanford, Kansas City Plant, Lawrence Livermore National Laboratory, Pantex, and Sandia National Laboratory.

The Idaho National Engineering Laboratory (INEL) includes the incineration of 17,442 kg of waste by government facilities. The facilities required were incinerator, aqueous waste treatment, grouting, supporting treatment administration, and shallow land disposal. The throughput of incineration was split into a 68-pound per hour rate for commercial treatment and 9 pounds per hour for government treatment. The costs were scaled from the Decentralized Alternative where the government incineration is occurring at a rate of 53 pounds per hour.

The Los Alamos National Laboratory does not include government incineration or fuel burning of waste; these processes were included in the Decentralized Alternative. These costs were deleted for the No Action Alternative, which accordingly removes the need for any onsite facilities; all commercial costs remained the same as the Decentralized Alternative.

SRS does not include government incineration or fuel burning of waste; these processes were included in the Decentralized Alternative. These costs were deleted for the No Action Alternative and accordingly remove the need for any onsite facilities; all commercial costs remained the same as the Decentralized Alternative.

Oak Ridge Reservation (ORR) includes incineration and fuel burning at reduced levels: 36 pounds per hour, reduced from 79 pounds per hour in the Decentralized Alternative. The onsite incineration, aqueous waste treatment, grouting, treatment administration, and shallow land disposal facilities are scaled down respectively. Commercial facilities now include 43 pounds, a commercial incineration requirement.

The treatment costs are shown on the attached Tables E-13 and E-14.

Table E-13. HW Case #1 - PLCC Summary
Treatment Scenario - No Action

Table V.4.8-13 WM Hazardous Waste Case 1 Life Cycle Cost Summary Treatment Scenario - No Action										
			COST BY WORK BREAKDOWN STRUCTURE ELEMENT					COST BY FUNCTION		
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations ($K)	2.0 Construction ($K)	3.0 Operations & Maintenance ($K)	4.0 Decontamination & Decommissioning ($K)	Site Total ($K)	In-house Treatment ($K)	In-house Disposal ($K)	Commercial Treat & Dispose ($K)
ANL-E										21,737
Fermi										$ 1,599 0
Hanford			$ -	$ -		$ -	$ 5,970.0	$ -	$ -	$ 5,970 0
INEL	x	x			$ 6,513.0		$ 10,038.0	$ 6,326.0	$ 187.0	$ 3,525 0
KCP							$ 9,941 0			$ 9,941.0
LANL							$ 2,940 0			$ 2,940 0
LLNL							$ 9,715 0			$ 9,715 0
ORR			$ -	$ -	$ 15,972.0	$ -	$ 20,156.0	$ 15,485.0	$ 487.0	$ 4,184.0
Pantex							$ 7,236.0			$ 7,236 0
SNL-NM							$ 2,875 0			$ 2,875 0
SRS							$ 2,797.0			$ 2,797 0
	TOTAL		$ -	$ -	$ 22,485.0	$ -	$ 94,993 0	$ 21,811.0	$ 674.0	$ 18,319 0
						Transportation	$ 463 0			
						TOTAL COST	$ 95,456.0			

Table E-14. HW Case #1 - FTE Summary
Treatment Scenario - No Action

Table V.4.8-14 WM Hazardous Waste Case 1 Full Time Equivalent Summary									
Treatment Scenario - No Action									
			FTE BY WORK BREAKDOWN STRUCTURE ELEMENT					FTE BY FUNCTION	
Site Name	Treatment Site	Disposal Site	1.0 Pre-Operations (FTE)	2.0 Construction (FTE)	3.0 Operations & Maintenance (FTE)	4.0 Decontamination & Decommissioning (FTE)	Site Total (FTE)	In-house Treatment (FTE)	In-house Disposal (FTE)
HANF			0	0	0	0	0	0	0
INEL	x	x	0	0	37	0	37	36	1
LANL			0	0	0	0	0	0	0
ORR	x	x	0	0	93	0	93	90	3
SRS			0	0	0	0	0	0	0
	TOTAL		0	0	130	0	130	126	4
						TOTAL FTE	130		

E-4. COST ESTIMATING PROCEDURE FOR HIGH-LEVEL WASTE CANISTER STORAGE AND TRANSPORTATION

E-4.1 Methodology and Assumptions

The life-cycle costs are the "cradle to grave" costs, i.e., the costs incurred from the time the waste is generated to the end of its institutional control. The total life-cycle costs must include all costs associated with waste handling following its generation, current storage and treatment, transportation, future disposal, and monitoring. The Programmatic Environmental Impact Statement (PEIS) will not provide cost analysis of the current storage of HLW, pretreatment and treatment of HLW (resulting in canisters of vitrified waste), or environmental impacts of HLW disposal at the candidate geologic repository, Yucca Mountain. The PEIS does provide cost analysis of the interim storage of canisters and the transportation to storage sites and the candidate geologic repository. Because of the possibility of a prolonged delay of HLW disposal, analysis options for longer storage is also addressed.

Projecting the cost of the HLW alternatives involves developing estimates of the individual cost components. The cost is divided into two components, the first being the capital investment and the second associated with annual operating charges. The capital cost of a facility includes process equipment, construction materials (e.g., steel and concrete), and labor as well as indirect costs such as those for design, contingencies, and environmental compliance. The annual operations and maintenance (O&M) costs are expenses for operation and maintenance staff, fixed and variable supplies, annual operating fees, administration, and general expenses. These two cost components were estimated by reviewing and abstracting available data on the costs of storage and transportation of HLW. To facilitate comparison, data normalization was necessary but was limited principally to adjustments of all costs to 1994 current year dollars. Escalation factors used for these adjustments were obtained from the U.S. Department of Commerce Survey of Current Business (DOC 1994).

Given the current operations schedule of the SRS Defense Waste Processing Facility (DWPF), it may be possible to transport the canisters directly from the West Valley Demonstration Project (WVDP) to SRS without ever placing the canisters in storage at WVDP, thereby reducing costs at WVDP. However, this scenario was not analyzed due to the uncertainties in the DWPF schedule.

E-4.2 Canister Storage

The storage of vitrified HLW from Hanford, SRS, and WVDP would be placed in an onsite storage facility awaiting transport to the candidate geologic repository. The PEIS alternatives for HLW management include (1) No Action—Continued storage (assumed for 30 years), (2) Decentralized—All sites provide storage for canisters until the candidate geologic repository begins accepting U.S. Department of Energy (DOE) HLW in 2015, with shipments beginning in 2016; (3) Regionalized-1—WVDP ships its canisters to SRS for storage until transportation to the candidate repository begins in 2016; (4) Regionalized-2—WVDP ships its canisters to Hanford for storage until transportation to the candidate repository begins in 2016; (5) Centralized—WVDP and SRS ship their canisters to Hanford for storage until transportation to the candidate repository begins in 2016; and (6) Centralized—with acceptance at geologic repository delayed past 2015. For the Decentralized and Regionalized Alternatives, the assumption is made that the approval of the candidate repository will

occur in a timely manner so that, the amount of storage facilities to be constructed can be kept to the minimum required. For the Centralized Alternative with delayed acceptance, the assumption is made that the designation of the geologic disposal site is deferred, requiring the construction of storage facilities at each site capable of holding the full amount of canisters to be stored at that site. The analysis options are costed assuming that the decision on the geologic disposal site is eventually made in time to begin transportation in 2016; that additional time will pass with each site completing its vitrification operations, and constructing storage facilities with the capacity to store the full amount of canisters produced. Further deferrals of the decision will increase the total cost of storage. Depending upon the analysis option, the costs for storage operations will increase complex-wide by an additional $4–6 million for every year past 2015 that acceptance of HLW canisters at the geologic repository is deferred.

The storage technology selected for costing is the modular vault dry storage (MVDS) concept similar to the storage facility constructed at SRS. Each canister storage vault (CSV) will be an air-cooled dry storage vault for vitrified HLW. Activities at a given CSV include receipt and unloading of the transportation cask containing the canister of vitrified waste, inspection of the canister, and storage of the waste until transfer to a permanent geologic repository.

Argonne National Laboratory (1994) provided the rationale for costing the construction and operations of these facilities. The below formula was developed to estimate capital costs:

$$[\text{Capital Cost (\$ million)}]_{MVDS} = 0.71\ [\text{Capacity (HLW Canister)}]^{0.53}$$

Annual operation and maintenance costs include the routine handling, storage, and retrieval, with the predominance of costs pertaining to the operation of facilities. The operating lifetime of the various storage facilities varies depending upon the transportation instruction for each alternative. The correlation of the annual operating costs for the storage period as a function of capacity is:

$$[\text{Annual O\&M Cost (\$1,00/yr)}]_{Storage} = 38.6 + 0.27 \times [\text{Capacity (HLW canisters being stored)}]$$

Loading/unloading operations were evaluated in the reference; the following formula was developed:

$$[\text{Annual O\&M Cost (\$1,000/yr)}]_{Loading} = 770 \times [\text{Throughput (HLW Canisters shipped/yr)}]^{0.52}$$

Tables E-15 through E-36 list by site the storage facility capacities required, canister generation rates, and canister shipping rates. The timelines for storage and the canister tables give the input required to cost out the alternatives. This data was extracted from Chapter 9 of the PEIS.

Table E-15. Hanford canister data and timings.

	Hanford				
Alternative	Number of canisters stored	Number of canisters generated per year	Number of existing storage modules	Number of storage modules constructed[a]	Number of canisters shipped
No action	750	320[b]	0	1[c]	15,000
Decentralized	15,000	790	0	7	15,000
Regionalized 1	15,000	790	0	7	15,000
Regionalized 2	15,300	790	0	7	15,300
Centralized—acceptance in 2015	18,000	790	0	8	18,000
Centralized—acceptance delayed past 2015	28,372	790	0	12	28,372

a. Module size is based on storage capacity for 2,286 canisters per unit. Acreage required is 2 acres per module.

b. Not consistent with 1994 Tri-Party agreement which states that generation will start in 2009 and end in 2028. Because Hanford is only authorized for storage of 750 canisters and the earliest the repository begins accepting waste is 2015, Hanford would have to delay production until 2013 or else start and stop once the storage facility is full. In order to end in 2028, the generation rate would be 790 canisters per year. This rate is not currently authorized in existing National Environmental Policy Act (NEPA) documentation.

c. Storage is authorized for 750 canisters, however the module has not been constructed. Therefore, assume construction of a small module.

Table E-16. Hanford no action.

Storage	Authorized for 750 canisters
	Storage module built for 750
Generate	15,000 canisters
Generation	Starts in 2013[a]
	Ends in 2060[a]
	Rate—320 canisters per year [based on 1987 Environmental Impact Statement (EIS)]
Shipping	To the repository begins in 2015
	Rate—700 canisters for the first three years, and then 800 canisters per year thereafter.
	To the repository ends approximately 19 years later
	750 canisters in storage for entire time from 2015 through 2054 approximately 2 yrs +19 yrs = 22 yrs.

a. Not consistent with 1994 Tri-Party agreement which states that generation will start in 2009 and end in 2028. Because Hanford is only authorized for storage of 750 canisters and the earliest the repository begins accepting waste is 2015, Hanford would have to delay production until 2013 or else start and stop once the storage facility is full. In order to end in 2028, the generation rate would be 790 canisters per year. This rate is not currently authorized in existing NEPA documentation.

Table E-17. Hanford decentralized and regionalized 1.

Storage	Constructed for 15,000 canisters
	7 storage modules constructed, 2 acres required per module
Generation	Starts in 2009
	Ends in 2028
	Rate—790 canisters per year
Shipping	To the repository begins in 2015
	Rate—200 canisters per year for first three years; 400 canisters per year thereafter
	To the repository ends approximately 39 years later
	Canisters in storage ramp up at a rate of 790 per year. For analysis purposes, assume all 15,000 are in storage until they are shipped to the repository.

Table E-18. Hanford regionalized 2.

Storage	Constructed for 15,300 canisters (300 from WVDP)
	7 storage modules constructed, 2 acres required per module
Generation	Starts in 2009
	Ends in 2028
	Rate—790 canisters per year
Shipping	To the repository begins in 2015
	Rate—400 canisters per year
	To the repository ends approximately 39 years later
	Canisters in storage ramp up at a rate of 790 per year. For analysis purposes, assume all 15,000 plus the 300 from WVDP are in storage until they are shipped to the repository.

Table E-19. Hanford centralized assuming repository begins accepting DOE-managed waste in 2015.

Storage	Constructed for 18,000 canisters (300 from WVDP, 2,373 from SRS, and 327 from INEL)
	8 storage modules constructed, 2 acres required per module
Generation	Starts in 2009
	Ends in 2028
	Rate—790 canisters per year
Shipping	To the repository begins in 2015
	Rate—400 canisters per year
	To the repository ends approximately 45 years later
	Canisters in storage ramp up at a rate of 790 per year. For analysis purposes, assume all 18,000 (300 WVDP, 4,373 SRS, and 327 INEL) are in storage until they are shipped to the repository.

Table E-20. Hanford centralized assuming repository is delayed past 2015.

Storage	Constructed for 28,372 canisters (300 from WVDP, 4,572 from SRS, and 8,500 from INEL)
	12 storage modules constructed, 2 acres required per module
Generation	Starts in 2009
	Ends in 2028
	Rate—790 canisters per year
Shipping	To the repository begins as soon as the repository is opened
	Rate—800 canisters per year
	To the repository ends approximately 35.5 years later
	Hanford canisters in storage ramp up at a rate of 790 per year. For analysis purposes, assume all 28,372 (300 WVDP, 4,572 SRS, and 8,500 INEL) are in storage until they are shipped to the repository.

Table E-21. SRS canister data and timings.

Savannah River Site					
Alternative	Number of canisters stored	Number of canisters generated per year	Number of existing storage modules	Number of storage modules constructed[a]	Number of canisters shipped
No action	4,572	190	1	1[b]	4,572
Decentralized	4,572	190	1	1	4,572
Regionalized 1	4,872	190	1	1	4,872
Regionalized 2	4,572	190	1	1	4,572
Centralized—acceptance in 2015	2,199[c]	190	1	1	4,572
Centralized—acceptance delayed past 2015	0[d]	190	1	1	4,572

a. Module size is based on storage capacity for 2,286 canisters per unit. Acreage required is 2 acres per module.

b. Storage is authorized for 4,572 canisters. Although the second glass storage building is authorized in accordance with the Record of Decision for the DWPF Supplemental EIS, for purposes of the PEIS we have assumed the need to construct this facility in our analysis.

c. 2,373 canisters are shipped to Hanford for storage. For analysis purposes, assume 2,373 canisters are in storage at SRS until 2015 until they are shipped to Hanford starting in 2009. Therefore 4,572 canisters are in storage for entire time from 1996 through 2037 (19 years in storage prior to 2015 and approximately 22 years in storage during ship off period to the repository).

d. All 4,572 canisters are shipped to Hanford eventually. However, it takes approximately 13 years to complete shipping.

Table E-22. SRS no action, decentralized and regionalized 2.

Storage	Authorized for 4,572 canisters
	Construction built for 2,286 canisters[a]
	One storage module constructed, 2 acres required
Generation	4,572 canisters
	Starts in 1996[a]
	Ends in 2020
	Rate—190 canisters per year; (annual capacity 410 canisters)
Shipping	To the repository begins in 2015
	Rate—200 canisters per year
	To the repository ends approximately 23 years later
	Canisters in storage ramp up at a rate of 190 per year. For analysis purposes, assume all 4,572 are in storage until they are shipped to the repository. Therefore 4,572 canisters are in storage for entire time from 1996 through 2061 (19 years in storage prior to 2015 and approximately 23 years in storage during ship off period to the repository).

a. Although the second glass storage building is authorized in accordance with the Record of Decision for the DWPF Supplemental EIS, for purposes of the PEIS we have assumed the need to construct this facility in our analysis.

Table E-23. SRS regionalized 1.

Storage	Authorized for 4,572 canisters
	Construction built for 2,286 canisters[a]
	One storage module constructed; assumed capable of handling 300 WVDP canisters, 2 acres required
Generation	4,572 canisters
	Starts—1996[a]
	Ends in 2020
	Rate—190 canisters per year; (annual capacity 410 canisters)
	Receives 300 canisters from WVDP
Shipping	To the repository begins in 2015
	Rate—200 canisters per year
	To the repository ends approximately 24.3 years later
	Canisters in storage ramp up at a rate of 190 per year. For analysis purposes, assume all 4,572 are in storage until they are shipped to the repository or Hanford. Therefore 4,572 canisters are in storage for entire time from 1996 through 2061 (19 years in storage prior to 2015 and approximately 24.3 years in storage during ship off period to the repository).

a. Although the second glass storage building is authorized in accordance with the Record of Decision for the DWPF Supplemental EIS, for purposes of the PEIS we have assumed the need to construct this facility in our analysis.

Table E-24. SRS centralized assuming repository begins accepting DOE-managed waste in 2015.

Storage	Authorized for 4,572 canisters
	Construction built for 2,286 canisters[a]
	One storage module constructed, 2 acres required
Generation	4,572 canisters
	Starts—1996[a]
	Ends in 2020
	Rate—190 canisters per year; (annual capacity 410 canisters)
	Assumes shipping to Hanford begins in 2009; approximately 2,373 canisters shipped to Hanford prior to 2015. Canisters produced after 2015 (2,199) shipped directly to the repository.
Shipping	To the repository begins in 2015
	Rate—200 canisters per year
	To the repository ends approximately 11 years later
	Canisters in storage ramp up at a rate of 190 per year. For analysis purposes, assume 2,373 canisters are in storage at SRS until 2015 until they are shipped to Hanford starting in 2009. Therefore 4,572 canisters are in storage for entire time from 1996 through 2037 (19 years in storage prior to 2015 and approximately 11 years in storage during ship off period to the repository).

a. Although the second glass storage building is authorized in accordance with the Record of Decision for the DWPF Supplemental EIS, for purposes of the PEIS we have assumed the need to construct this facility in our analysis.

Table E-25. SRS centralized assuming repository is delayed past 2015.

Storage	Authorized for 4,572 canisters
	Construction built for 2,286 canisters[a]
	One storage module constructed, 2 acres required
Generation	4,572 canisters
	Starts in 1996[a]
	Ends in 2020
	Rate—190 canisters per year; (annual capacity 410 canisters)
Shipping	To Hanford begins in 2009
	Canisters in storage until 2009 when shipping to Hanford begins
	Canisters in storage ramp up at a rate of 190 per year. For analysis purposes, assume 13 years of storage at SRS until canisters are shipped to Hanford for storage.

a. Although the second glass storage building is authorized in accordance with the Record of Decision for the DWPF Supplemental EIS, for purposes of the PEIS we have assumed the need to construct this facility in our analysis.

Table E-26. WVDP canister data and timings.

	West Valley Demonstration Project				
Alternative	Number of canisters stored	Number of canisters generated per year	Number of existing storage modules	Number of storage modules constructed	Number of canisters shipped
No action	300	100	1	0	300
Decentralized	300	100	1	0	300
Regionalized 1	0[a]	100	1	0	300
Regionalized 2	0[a]	100	1	0	300
Centralized—acceptance in 2015	0[a]	100	1	0	300
Centralized—acceptance delayed past 2015	0[a]	100	1	0	300

a. Canisters will be in storage for three years at least while the loading-unloading bay is constructed.

Table E-27. WVDP no action and decentralized.

Storage	Full capacity exists for 300 canisters
Generation	Starts in 1996
	Ends in 1998
	Rate—100 canisters per year
Shipping	To repository begins in 2015
	Rate—100 canisters per year
	Ends in 2018
	300 canisters stored for 20 years

Table E-28. WVDP regionalized 1.

Storage	Full capacity exists for 300 canisters
Generation	Starts in 1996
	Ends in 1998
	Rate—100 canisters per year
Shipping	To SRS begins in 1999
	Rate—100 canisters per year
	Ends in 2002
	300 canisters stored for 3 years[a]

a. Three years storage is needed to allow for construction of loading facility area.

Table E-29. WVDP regionalized 2 and centralized acceptance beginning in 2015.

Storage	Full capacity exists for 300 canisters
Generation	Starts in 1996
	Ends in 1998
	Rate—100 canisters per year
Shipping	To Hanford begins in 2009
	Rate—100 canisters per year
	Ends in 2012
	300 canisters stored for 11 years[a]

a. Canisters in storage until Hanford constructs its storage facility.

Table E-30. WVDP no action and decentralized.

Storage	Full capacity exists for 300 canisters
Generation	Starts in 1996
	Ends in 1998
	Rate—100 canisters per year
Shipping	To repository begins in 2015
	Rate—100 canisters per year
	Ends in 2018
	300 canisters stored for 20 years

Table E-31. WVDP regionalized 1.

Storage	Full capacity exists for 300 canisters
Generation	Starts in 1996
	Ends in 1998
	Rate—100 canisters per year
Shipping	To SRS begins in 1999
	Rate—100 canisters per year
	Ends in 2002
	300 canisters stored for 3 years[a]

a. Three years storage is needed to allow for construction of loading facility area.

Table E-32. WVDP regionalized 2 and centralized acceptance beginning in 2015.

Storage	Full capacity exists for 300 canisters
Generation	Starts in 1996
	Ends in 1998
	Rate—100 canisters per year
Shipping	To Hanford begins in 2009
	Rate—100 canisters per year
	Ends in 2012
	300 canisters stored for 11 years[a]

a. Canisters in storage until Hanford constructs its storage facility.

Table E-33. INEL canister data and timings.

Idaho National Engineering Laboratory					
Alternative	Number of canisters stored	Number of canisters generated per year	Number of existing storage modules	Number of storage modules constructed	Total number of canisters shipped
No action[a]	0	0	0	0	0
Decentralized	8,500	327	0	4	8,500
Regionalized 1	8,500	327	0	4	8,500
Regionalized 2	8,500	327	0	4	8,500
Centralized—acceptance in 2015	8,173[b]	327	0	4	8,500
Centralized—acceptance delayed past 2015	0	327	0	1[c]	8,500

a. No existing NEPA authorization for storage of vitrified canisters. HLW in calcine formed currently stored and impacts included in cumulative effects.

b. Due to acceptance rate at the repository, storage for 8,173 canisters is assumed to be constructed.

c. Assume construction of a module sized for one year's production.

E-4.3 Idaho National Engineering Laboratory No Action

No existing National Environmental Policy Act authorization for storage of vitrified canisters. HLW in calcine formed currently stored and impacts included in cumulative effects.

Table E-34. INEL decentralized, regionalized 1 and regionalized 2.

Storage	Constructed for 8,500 canisters; (4 modules each with capacity for 2,286 canisters, 2 acres per module required)
Generation	8,500 canisters
	Starts in 2014
	Rate—327 canisters per year
	Ends in 2040
Shipping	To repository begins in 2015
	Rate—200 canisters per year
	To repository ends approximately 42.5 years later
	Canisters in storage ramp up at a rate of 327 per year. For analysis purposes, assume all 8,500 canisters are in storage until they are shipped to the repository.

Table E-35. INEL centralized case assuming repository begins accepting in 2015.

Storage	Constructed for 8,500 canisters; (4 modules each with capacity for 2,286 canisters, 2 acres per module required)
Generation	8,500 canisters
	Starts in 2014
	Rate—327 canisters per year
	Ends in 2040
Shipping	327 to Hanford as produced. This is all that will be produced prior to 2015
	Rate to Hanford—327 canisters per year
	To repository begins 2015; 8,173 canisters produced after repository begins accepting, therefore these are shipped direct to repository
	Rate to repository—200 canisters per year
	To repository ends approximately 40.8 years later
	Canisters in storage ramp up at a rate of 327 per year. For analysis purposes, assume all 8,500 canisters are in storage until they are shipped to the repository or Hanford.

Table E-36. INEL centralized case assuming repository delayed past 2015.

Storage	Constructed for 327 canisters; i.e. one year's generation capacity
Generation	8,500 canisters
	Starts in 2014
	Rate—327 canisters per year
	Ends in 2040
Shipping	To Hanford as generated
	Rate—327 canisters per year
	For analysis purposes, assume 327 canisters could be in storage at any time.

E-4.4 Transportation of Vitrified High-Level Waste Canisters

Argonne National Laboratory (1994) provided the rationale for costing transportation of HLW canisters between sites. Based on numerous reports, there is general agreement that transportation costs for HLW would be similar in cost for spent nuclear fuel. The life-cycle cost for HLW transportation can, in general, be calculated by summing the following cost categories: shipping cost; security cost; cask, capital and decommissioning cost; cask maintenance cost; inspection cost; demurrage cost; handling cost (loading and unloading); and transportation support system costs.

The following assumptions were made for the HLW transportation cost analysis:

- The costs associated with the inspection cost category are included in the annual operating charges for the various HLW storage facilities.
- Demurrage is defined to be the charge for the detention of a freight car or truck by the shipper or receiver beyond the time allowed for loading, unloading, or shipping. It is assumed to be negligible in comparison with the other cost components (this component is not applicable to rail shipping).
- The handling cost for loading and unloading at the HLW storage facility has already been considered in the storage cost; the handling cost at the repository is assumed to be out-of-scope.
- Transportation support system cost includes the costs to maintain the railcars and trailers which are assumed to be negligible, as the average annual O&M cost for a truck trailer is approximately $14,000, and for a rail car is $5,000.

Table E-37 presents the formulas used to compute truck and rail transportation costs.

Table E-37. Assumed relationships for the four transportation cost components.

Cost Variable	Relationship Assumed in This Study	
	Rail-Based	Truck-Based
Speed (mph)	DIS/(0.04204 × DIS + 4)[a]	35 (i.e. , a constant value)[b]
Annual Cask Requirement (ACR)	$\Sigma\{[(2 \times DIS)/SPEED_{rail}]/24 + 2 \times (5 \text{ days})\}$[c]	$\Sigma\{[(2 \times DIS)/SPEED_{rail}]/24 + 2 \times (3 \text{ days})\}$[c]
Shipping Cost, less than 1,000 miles ($1,985)	Σ([2.32 + 0.0067 × DIS] × 2,000 +([2.15 + 0.0063 × DIS] × 1,800 × [No. of Canisters] / 5[c,d]	Σ([1.493 + 0.0033 × DIS] × 500 + ([0.428 + 0.0034 × DIS] × 475) × [No. of Canisters][c]
Shipping Cost, greater than 1,000 miles ($1,985)	Σ([5.07 + 0.004 × DIS] × 2,000 + ([4.72 + 0.0037 × DIS] × 1,800 × [No. of Canisters] / 5[c,d]	Σ([-0.16 + 0.0049 × DIS] × 500 + ([-0.19 + 0.004 × DIS] × 475) × [No. of Canisters][c]
Security Cost ($1,985)	$\Sigma\{291.65 \times [DIS^{-0.5987}] \times DIS\} \times$ [No. of Canisters] / 5	$\Sigma\{7.93 \times [DIS^{-0.1855}] \times DIS\} \times$ [No. of Canisters]
Cask Capital Cost ($1,985)[e]	Σ(ACR/300) × [No. of Canisters] × (2.5×10^5)	Σ(ACR/300) × [No. of Canisters] × (1.5×10^5)
Cask Maintenance Cost ($1,985)[f]	Σ(ACR/300) × [No. of Canisters] × (2.5×10^4)	Σ(ACR/300) × [No. of Canisters] × (1.5×10^4)

a. DIS = distance travelled (one-way miles); is a function of PEIS alternative

b. Conservative value, based on [DOE 1986]; a value of 40 mph is cited in [DOE 1991]

c. The summations are to be performed over all shipping routes

d. Assumes five HLW canisters per rail shipping cask, one HLW canister per truck shipping cask [DOE 1986]

e. Assumes a capital cost of $2.5 million for rail cask, $1.5 million for truck cask (both $1,985) [DOE 1986]

f. Assumes an annual maintenance cost of $125,000 for rail cask, $75,000 for truck cask (both $1,985) [DOE 1986]

E-4.5 Summary of Costs

The summary of storage and transportation costs, which result from the application of these formulas to the canister data and timings outlined above, are found in the following tables.

Table E-38 presents the site costs for storage and handling by alternative.

Table E-39 presents the costs at the alternative level for life-cycle component, functional area, and transportation mode.

Table E-38. HLW storage and transportation costs by site by alternative.

Site	Type of activity	Alternative (cost in $M)					
		No action	Decentralized	Regional 1	Regional 2	Centralized	Centralized-delayed acceptance
Hanford	Total for construction (storage)	22	280	280	280	360	520
	O&M of storage facility	15	206	206	216	328	479
	Loading and unloading of canisters	789	940	940	966	1046	1332
	Total for operations	804	1146	1146	1182	1374	3185
INEL	Total for construction (storage)	0	120	120	120	120	14
	O&M of storage facility	0	94	94	94	94	3
	Loading and unloading of canisters	0	770	728	728	786	520
	Total for operations	0	864	822	822	880	523
Savannah River	Total for construction (storage)	40	40	40	40	0	0
	O&M of storage facility	119	51	54	51	17	17
	Loading and unloading of canisters	332	476	500	476	266	384
	Total for operations	451	527	554	527	283	401
West Valley	Total for construction (storage)	10	10	10	10	10	10
	O&M of storage facility	2	1	1	1	1	1
	Loading and unloading of canisters	18	18	18	18	18	18
	Total for operations	20	19	19	19	19	19

Table E-39. Total HLW storage and transportation costs by alternative.

		HLW—cost in billions of dollars						
		Total cost (excluding transportation)	Cost by life-cycle component		Cost by functional area		Transportation cost	
Alternatives	Description		Construction	O&M	Storage	Handling	Truck	Rail
No action	Current program	1.73	0.07	1.28	0.21	1.14	0.38	0.56
Decentralized	Acceptance at repository begins in 2015.	3.50	0.45	2.56	0.81	2.20	0.49	0.69
Regionalized 1	Acceptance at repository begins in 2015	3.48	0.45	2.54	0.80	2.19	0.49	0.70
Regionalized 2	Acceptance at repository begins in 2015	3.46	0.42	2.55	0.78	2.19	0.49	0.70
Centralized	Acceptance at repository begins in 2015	3.59	0.49	2.56	0.93	2.19	0.54	0.83
Centralized-delayed acceptance	Acceptance at repository delayed past 2015	4.00	0.54	2.75	1.04	2.25	0.71	1.04

E-5. REFERENCES

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